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*Allen*

THE

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BRITISH AMERICAN

CULTIVATOR,

VOL. III.—NEW SERIES.

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EDITED BY W. G. EDMUNDSON.

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TORONTO:

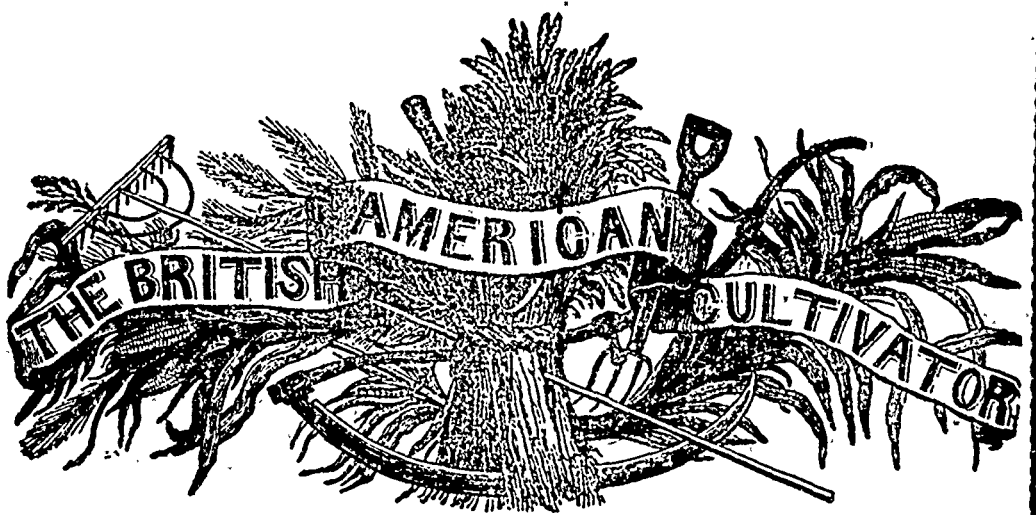
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"Agriculture not only gives Riches to a Nation, but the only Riches she can call her own."

New Series.

TORONTO, JANUARY, 1847.

Vol. III. No. 1.

#### Canadian Farmers' Prospects.

THE subject we have selected for a leader, is one which is very imperfectly understood by the great mass of the people of this country; and it is also one upon which but few conductors of the press would feel free to fully expose their views for public criticism. The position we happen to occupy, prohibits silence on our part, when there is clearly a necessity for a candid and impartial illustration of the influences that have a prejudicial bearing upon the two great productive interests of the country—agriculture and manufactures. It is not our purpose at this time, to give a lengthy dissertation upon the rather abstruse subject of political economy, but we shall more especially confine our remarks to a few practical points, which we trust will receive the careful consideration of an enlightened public.

The late changes in the British Corn Laws has evidently seriously affected the wheat-growing interests of Canada; but it was one of those influences over which the colonists could exercise no controul, nor was it reasonable that their voice should be heard

in the Imperial Parliament, so long as a respectable portion of the farmers of Great Britain were willing to give the new measure a fair trial, and they—the colonists—were not called upon to contribute either directly or indirectly towards defraying the expenses of the Imperial Government. So satisfied are we upon this point, that we are prepared to hazard the opinion, that if the entire Canadian people, backed by the most favorable representatives from both branches of the Colonial Government, had petitioned the Imperial Parliament to continue the boon so gratuitously granted them by the passing of Sir Robert Peel's Corn Bill, that those representations and appeals would have been unavailing. Every sensible man who has given this subject a moment's serious reflection, must be of the opinion, that the Canadian farmers must adopt such measures as will enable them to successfully compete in the British markets with other grain-growing countries. The best policy that can be proposed to secure this object, is the speedy adoption of the most enlightened views of cultivation, as practiced in this and other agricultural countries.

To bear up under the influences which have been previously pointed out, it is also necessary that the staple products of the country should be increased. At present, the only export article that the Canadian people can boast of is wheat and flour. Many others might be added to the list, and scores of articles that are imported from other countries, could be produced as cheaply here as in any other portion of the globe. The country that depends mostly upon one staple export article, is liable to be placed in a most dangerous position. To illustrate this matter, it is only necessary to cite facts which every business man well understands.

Last year the Canadian export merchants suffered extremely from the sudden changes in the British tariff laws; so much so, indeed, that if confidence had not been strong in their favor, hundreds would have been obliged to have closed up their business.— Those who thus failed in meeting their engagements, have been this year happily placed in a situation, through a productive Canadian harvest, and a certain prospect of good prices in the British markets, of regaining their former losses. But what would have been the result, had the potato crop not failed in Europe, or had the Canadian harvest been an unfavorable one? We have no anxiety to unnecessarily frighten the good people of this country, but, notwithstanding, we have no hesitation in stating, that if the potato crop had not been a failure in Europe, that wheat would not have exceeded three shillings per bushel in the Western Canadian market. We shall allow others to draw their own inferences from this statement. Nothing can be more desirable, than to see the inhabitants of a new country like Canada, evincing a disposition to adopt the improvements of the day, and to endeavor to place their country in a situation that a prospect of a good harvest in Britain and other European countries, should not have an unhealthy influence upon their interests; and also that a failure of the Canadian wheat crop should be ineffectual in producing a general state of alarm and bankruptcy among the commercial classes. These evils may

be averted; and even without the special favor of Imperial legislation, Canada may be placed in a comparative state of commercial independence, provided those who have influence in the country would employ the necessary means of making her so. The groundwork of every improvement should be based upon the principle of increasing the products, and at the same time, lessen the costs of production, by employing labour-saving machinery, and by adopting a judicious system of cropping. It may be thought rather a difficult task to do this; but it is the writer's opinion, that such a system of agriculture must be substituted for the one that is in general use, or else the farmers will fail in realising large profits from their lands. Still the question to be settled is, how shall the farmers of Canada increase their crops and profits, and also improve the condition of their soil? To reply to this query, in a satisfactory manner, would require much more space than is usually given to original articles in Canadian magazines.— For fear of being tedious, only a part of the subject will be discussed in this number, and at an early period it will again be resumed.

In order that the practical farmer may readily understand the nature and importance of this subject, it is indispensable that it be treated in a plain practical manner;— and probably the writer could adopt no course that would prove so generally interesting and useful, as to furnish the reader with a clear exposition of his views upon the best systems of cultivating the various crops grown, or those which should be grown in the colony, to enable the farmers to successfully compete with foreign competition in wheat. As this must be considered the farmer's golden crop, its cultivation should be well understood by all. It is not only necessary that the wheat-grower should guard against chess, smut, rye, cockle, and other impurities, but that his average yield should equal at least twenty-five bushels of merchantable wheat per acre. Forty, and even fifty bushels may, under favorable circumstances, be harvested from an acre of land,

but it is unsafe to calculate upon more than twenty-five bushels, and a less average than this should not satisfy a farmer who depends upon the wheat crop as a principal source of revenue. The cultivation of clover should receive much greater attention at the hands of the wheat-grower than has yet been given it. The wheat crop cannot be brought to its *maximum* productiveness without the aid of the clover plant. Most farms would be much benefitted by laying down one-fourth of it annually with red clover. On those soils on which the wheat crop is apt to become rusted, the plan of cultivating clover largely, using plaster pretty liberally on the first crop, cutting the first crop early for hay, the second for seed, and manuring the land after the removal of the seed crop, with short barn-yard manure, and again plastering the following spring, and pasturing the land during the second season, up to the middle of August, and then ploughing the sward to the depth of eight or ten inches, and rolling or pressing the newly inverted sward before sowing the seed-wheat, would be found to increase the average yield of wheat, lessen the costs of production, and greatly enhance the profits of cultivation.—

Clover may be employed in the rotation of crops in a variety of ways, each of which upon certain soils might be considered the most valuable. Hundreds of farmers in Canada are satisfied to fold their arms in sluggishness, and drag out a mere existence upon a badly cultivated farm, and a large proportion of this class are so penny-wise and pound-foolish, as to deprive themselves of a single grain crop, by substituting clover. Those who grow no clover—and they are the poorest class of farmers that can be found—must have noticed the thrift of their neighbours who have the judgment to cultivate this crop extensively. It is somewhat curious that men who take to themselves a good deal of credit for being close observers of men and things, should be so short-sighted as not to see the propriety of modelling after the best examples with which they are acquainted, and to introduce into their farm-

management those improvements which have been the almost sole cause of the success of their more wealthy neighbors. If proof be required to satisfy the most incredulous, of the value of clover as a fertilizer, and as a suitable crop to prepare land for wheat, as much might be given as would fill at least an entire volume of the *Cultivator*. This crop has become so valuable in the estimation of the best Canadian farmers—and that portion of them especially who have made themselves independently rich from close attention to business and superior cultivation—that it may be deemed almost unnecessary to occupy much space with the further discussion of this part of the subject. It may not at all times be the best policy to adduce an extreme point to substantiate an argument, but in this instance we shall do so, in the hope that the case which we shall employ, to illustrate the truths of the doctrine we promulgated in the introductory remarks of this article, may be instrumental in effecting a great impetus for improvement in the agriculture of this country.

About twenty-four years since, a shrewd and industrious emigrant from the south of Scotland, settled in the neighbourhood of Cayuga Lake, N. Y. State, and for the first few years he worked for wages, among the farmers of that delightful section of country, the profits arising from which, soon enabled him to purchase a small farm, which had been by bad cultivation and injudicious cropping, almost totally robbed of its fertilizing properties. The previous owner took his available funds and removed to the "Far West," and our worthy and highly esteemed friend, Mr. John Johnstone, commenced a course of farming, the judicious application of which has enabled him to accumulate almost a princely fortune; and he may now be considered one of the richest and most sensible farmers in Central New York. Mr. Johnstone's almost unparalleled success must be mainly attributed to the liberal cultivation of the clover plant. One of his very first operations was, to put his small farm under a thorough state of clean

culture, and to sow it down to clover, with his wheat crop. He sowed the clover-seed in the early part of the month of April, or at a period when there was a light covering of snow upon the ground, and instead of sowing only three pounds of seed per acre, as is often done, he sowed ten pounds per acre. In this way he secured a full crop of young clover, and as soon as the wheat crop was removed off the ground, a light-dressing of well-fermented manure and plaster was then strewn broadcast upon the clover, which had an influence of pushing forward the clover plant amazingly. About the 15th of September, the clover crop was turned under, and the land again sown with wheat. Upon some of Mr. Johnstone's fields eighteen consecutive crops of wheat have been grown in the manner just described, and the annual production has increased from fifteen bushels up to thirty-five bushels per acre. This system of forcing the land to produce such enormous crops of wheat, for so many years, could not have been practiced had Mr. Johnstone not been fully alive to the importance of husbanding his barn-yard manure. The profits arising from Mr. J's first few years' farming operations, were invested in the purchase of a large tract of comparatively worthless hilly and rocky lands, in the immediate vicinity of his home farm, which he brought under cultivation, seeded it down to cultivated grasses, and stocked it with a large stock of thorough-bred Merino sheep. These sheep were wintered at the home-farm, upon wheat-straw and oil-cake, by which means a very large quantity of very valuable manure was made, and which, as above stated, was spread broadcast upon the young clover, and ploughed under for the wheat crop.

We by no means wish to be understood an advocate of such a severe system of cropping as that practiced so successfully by Mr. Johnstone, but do most emphatically assert, that a cheaper system of growing wheat must be put into practice than that of making naked summer-fallows, upon lands that does not require this expensive mode of cul-

tivation for the wheat crop. On certain soils, and under peculiar circumstances, a naked summer-fallow is indispensable, but in the great majority of cases, it is an injudicious application of means, to secure a crop of wheat. In a great many instances that have come under the writer's notice, the wheat crop has entirely failed through ignorance on the part of the cultivator. The practice alluded to is that of summer-fallowing and administering too liberal an application of unfermented barn-yard manure upon a soil that was, previous to the manuring, too rich in vegetable matter for the constitution of the wheat plant, whereas, if instead of summer-fallowing, the land had been deeply ploughed in the autumn, and cross-ploughed in the following spring, harrowed, rolled, and put into a thorough clean state of culture, and sown with peas, or a crop equally as well calculated to smother weeds and clean the ground, and followed by the wheat crop, the profits of the smothering crop could be made to defray the entire expense of cultivating the land for both crops, and also pay the rent of land, and leave the wheat crop an entire profit. It is possible to practice this system upon suitable soils, on an extensive scale, with nearly a certainty of the soil producing large crops of wheat of a superior quality. That the reader may form some idea of what is meant by growing a full average crop of wheat after a mustard fallow, and the entire expense of both crops being paid from the profits of the first crop, the writer would prove this position by citing an experiment recently made on his own farm. This experiment was made for the twofold object of proving that rust on the wheat plant may be prevented, and also that wheat may be grown as cheaply in this country as in any other portion of this continent. Seven acres of severely cropped land was selected for the experiment. It was ploughed in the autumn with three horses abreast, to the depth of ten inches, and before the frost set in, was well harrowed. The following spring it was cross-ploughed, harrowed, rolled, and sown with flax, at the rate

of two bushels of seed per acre. To secure a full crop of flax, a top-dressing of two bushels of house ashes, one of salt and plaster, were sown upon the young flax plants when the crop was about two inches above the surface of the ground. The flax crop yielded twenty bushels of seed, five hundred pounds of clean marketable flax, and three hundred pounds of swingling tow per acre. The flax seed was sold for four shillings per bushel, the flax for five pence per pound, and the tow for eleven shillings and three pence per hundred pounds. The flax crop yielded a product which brought in the market a fraction above sixteen pounds per acre, and although it was mostly prepared for market by hand-machinery, it yielded a net profit of eight pounds per acre, which was about the value of the land upon which the crop was grown. As soon as the flax was removed off the land, it was ploughed deeply and sown with wheat, upon one furrow, on the 16th of September, 1845. Although the piece of land in question was the last sown of a crop of fifty acres, it ripened six days earlier than any other portion, and was not injured with the rust. The straw was light in comparison to some other portions of the crop, but it was considered quite heavy enough by good judges, and yielded twenty five bushels of superior wheat per acre.—The grain was of such a superior quality, that the whole of it was sold for seed. This may be thought by some to be an extreme case of productiveness, and an over-rated profit for farming, but instead of it actually being so, the flax crop might have been made to produce twenty-five bushels of seed and six hundred pounds of clean flax per acre; and the wheat crop might have been so managed as to have produced forty bushels of wheat per acre. Those who believe that the success of getting large and profitable crops from land, is the result of a mere matter of chance, will doubt the whole of this statement; but many sensible men have lately given the business of agriculture their serious consideration, and have made it a point to look into the causes which produce

extraordinary results in cropping land; and all who have taken the trouble to do this, will readily understand what is meant by decreasing the costs of growing grain, and at the same time increase the productiveness of the soil. Scores of farmers through the various sections of Western Canada, since they have practiced an enlightened system of cultivation, no longer find it difficult to grow full average paying crops of grain.—The great thing after all is, to induce the farmers of Canada in general to adopt a system of managing their lands by which they need not fear any competition from the farmers of other countries. It must be clear to every sensible mind, that a system of management that would be well adapted on some soils, would not answer the purpose on others. In order that this question should be clearly understood, those who have cultivated the soil with a view of making a livelihood and increasing their worldly goods, must study the principles which govern the vegetable kingdom, and must do like men of other professions.—prize knowledge highly, and strive, if possible, to excel in every thing that is good and commendable in their respectable and independent calling.

THE PROVINCIAL ADVERTISER.—The first number of the *Provincial Advertiser* has been unavoidably delayed, but the publisher anticipates that it will be mailed by the 18th inst.

\* \* A communication on the important subject of speedily establishing Agricultural Clubs, has been received, and shall appear in the February number.

*Remedy for Lockjaw.*—We would state, for the benefit of those afflicted with this disease, that a common cent, or a piece of copper bound firmly upon the wounded part, and in actual contact with it, will cause almost immediate and entire relief and cause the wound to speedily heal, whether it be made by rusty nail, steel instrument, splinter, or any other cause, either in the foot, hand or other part of the body.—Rusty or tarnish copper is preferable to bright copper, though either will answer.



## Black Sea or Odessa Wheat.

A friend of ours in the Western District, about two months since, requested us to procure him twenty-five bushels of the above variety of wheat; we at once made enquiries respecting it, and wrote to two acquaintances in other districts to supply us with the article, but up to this time have not been able to procure it. We are not personally acquainted with the variety in question, and therefore cannot give an opinion regarding its adaptation to this country. Those of our readers who have grown it, or who are acquainted with its character, will oblige us by furnishing us with a few particulars, at an early date, so that we may give publicity to their communications in the next number of the *Cultivator*.

We have heard but little of the Cape of Good Hope wheat of late years. Judging from the superior samples exhibited by Captain Shaw at the Provincial Exhibition, one would suppose that it would prove a great acquisition to the agriculturists of the country, if it was more generally known.—If these remarks should catch the eye of some of our subscribers in the neighborhood of Guelph, we hope they will furnish us with a full account of this wheat, which we believe is held in general favor in the northern part of the Wellington District.

We feel certain that there are a great variety of valuable grains and seeds scattered through the country, of which the farmers generally know nothing of, and to expedite their general introduction, we purpose, in connection with the Agricultural Warehouse, to open a General Seed Store in the spring. But to do justice to this new enterprise, we cannot proceed without the assistance of our friends: we want to be furnished with pure samples of the best varieties of grains and seeds, and a pretty large supply may be had, if only our enterprising friends would consent to help us.

We exceedingly regret that we could not possibly furnish our Amherstburgh correspondent with the variety of wheat he order-

ed; the cause has been explained, which we trust will be satisfactory.

## Neighborhood Libraries.

We have been favored with a communication on this subject, from the pen of a zealous young farmer in the township of Etobicoke. For reasons that we will explain to our friend, we have concluded not to give his article a place in the columns of our magazine. We agree with our correspondent in the importance which he attaches to neighborhood or village libraries, but in order that these Institutions should be productive of a large amount of practical benefit to its members, a judicious selection of books should be made. In an agricultural and mechanical community, works that have a practical bearing upon the branches of business practiced, should form a considerable proportion of the books introduced into the public libraries.

We are delighted to learn that the Village of Weston Library is producing happy results in that flourishing neighborhood, and hope that similar institutions will be organised in every village in the Province, before the lapse of the present winter.

The opinion is too prevalent that those only who cultivate large farms accumulate property, and are entitled to the appellation of good farmers; no opinion can be at greater variance with truth than this—and if it were necessary to adduce evidence in proof of the latter assertion, scores of cases might be mentioned where parties have earned handsome fortunes, in Western Canada, from farms not exceeding 80 acres of cultivated land. Many whose farms are three times that extent, find it difficult to make anything more than a comfortable living, while their next neighbor, with his small well cultivated farm, is in perfectly easy circumstances, and at the end of each year finds himself from £150 to £200 richer than at the beginning of the year. The business of getting rich, or making a fortune, is as much of a trade, and requires as much close calculation and mechanical skill, as that of one

of the most difficult branches of mechanics. Scores, if not hundreds of cases may be pointed out, where men with small beginnings have, in Western Canada, earned, in the business of practical agriculture, upon large, medium, and small farms, independent fortunes,—or, in other words, their annual incomes, from lands and other investments, have equalled from £300 to £800 per annum; and the whole has been the product of from 20 to 30 years' toil and well directed business application in the honorable calling of agriculture. The writer could point to a number of farmers, who cleared in profits off their farms, not less than £500 per annum, during the past three years, but the question just now under notice is, not to show how fortunes are to be made by cultivating large farms, but rather how this object can be secured by cultivating small ones. It would be a somewhat lengthy—not to say difficult task—to follow a Canadian farmer, from his first commencement in life, upon his unpaid bush farm of one hundred or more acres, up to the period that he might be styled an independent farmer—suffice it to say, that thousands of proofs exist, in which these flattering results have been accomplished, and thousands of a similar kind are in progress of being made by aspiring industrious young men, who have located themselves upon uncultivated land in the newest settlements of the province.—

There are ten instances where farmers, owing to bad management, do not increase the value of their property, for one who accumulates an independency from the cultivation of the soil. There is no good reason why the great mass of the community cannot place themselves in a position that they may be termed wealthy. An abundance of the very best materials for producing wealth is to be met with in an unproductive state in every township of the country, but still, large masses of the population are poor, and in extremely indigent circumstances. The prosperous farmer's success must not be attributed to the extent of the acres he cultivates, but to his industry, economy, and

skill. In passing through the country, a careful observer will frequently see most excellent models of industry, neatness, and thrift; and the first thought that would occupy a patriotic mind is, the happy results that would be accomplished, were it possible to encourage all to model after those who have excelled in everything that is excellent and worthy of commendation. Holding the doctrine to be true, that all may thrive, unless such as have been sorely afflicted; and that a community composed of wealth-producers is much more desirable than wealth-consumers, we shall from time to time, adduce fruitful and conclusive arguments in favor of the adaptation of the country for the production of wealth, and shall show, in a manner that cannot be controverted, that small, as well as large farmers, may grow rich from their business.

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#### Hints to those on Small Farms.

ED. CULTIVATOR—Having but a few acres of land to cultivate, I have made it my study to obtain as much as possible from those few. The amount of manure I can command is small, hence I have not been permitted to accomplish this object by heavy crops from a high state of fertility. But I have been compelled to do it by a selection of crops profitable in themselves; some of which are as yet scarcely known, as farm crops, to farmers generally.

Among these, root crops hold an important place. I have formerly raised ruta bagas, and field beets largely; the former are very easily raised on light soils, costing me usually from 3 to 5 cents per bushel, according to the favourableness of the season. But to be raised thus cheaply, the land must be previously rich and well tilled, and cleared of weeds, and the young plants must be hoed before they are two inches high. The hoeing must be finished before they are that height. This is perfectly indispensable. Some of my richer neighbors have tried to raise them. They have selected some waste piece of ground, where a manure-yard, old stack, or demolished building formerly stood, such spot being of rich soil. But they seemed to forget that such places were also richly charged with the seed of weeds, hence a hard job to hoe the young crop. To make the matter ten times worse, they put off the hoeing

week, when the weeds had shot up six inches or a foot high, and the labor of cleaning them became enormous; while half the amount of the crop was lost by the stunting they thus received. What was the conclusion? "Why these rooty beggys are the hardest crop I ever raised, and I shan't have nothing more to do with'em."

Roots, raised in the cheap manner I have already described, I have found of the greatest advantage, nay, almost indispensable, in carrying my stock through winter, reducing the amount of hay needed to one-half, and requiring but little land comparatively for their production.

But useful as I have found ruta bagas, for feeding horses, store cattle, &c., I never could make them answer perfectly for milch cows; the milk and butter would have a slight taste of the turnip, although this was greatly diminished by feeding just after milking, and by working all the buttermilk from the butter. Hence I have adopted CARROTS as the main root crop. They are hardly so productive as turneps, but their superior richness far surpasses all other roots. Horses, not very fond of ruta bagas, will often prefer carrots to oats themselves, and feeding in company with oats and hay, they are superb. All cattle eat them with avidity; and milch cows through winter, if fed on them plentifully, give the richest milk and make the best butter. The white carrot, projecting from the ground four to six inches, is very easily harvested, and is more productive than the yellow carrot; while the latter has the advantage of remaining uninjured if left in the ground till spring. Hence I raise some of each.

But the crop most neglected by farmers, and which I find the most profitable of all, is corn sown in *thick drills for fodder*. This mode of raising fodder is so easy, requires so little labor, and yields so enormous a crop, that it is eminently worthy the adoption of every farmer, rich and poor, small and great, in debt and out of debt, thriving and not thriving, east, west, north, and south. Good soil is plowed, harrowed, and furrowed about two feet apart, as for potatoes, one man strews the grain from a basket along the furrow as fast as he can walk, about fifty grains to a foot, or two bushels to the acre; another follows with a common harrow, lengthwise with the furrows, or across them as is most convenient, and covers the seed. Passing the cultivator once or twice between the rows afterwards, is all the attention the crop needs. It quickly grows up,

and covering the whole ground, entirely precludes the necessity of hoeing. When the crop is taken off in autumn, the ground is clean as a floor, and they are not always clean, I am sorry to say.—Wheat may be sown after, with very great propriety, as the mere growth of herbage, (no grain being produced,) does not exhaust the soil. Hence this becomes an excellent crop for a course in rotation. The amount, (if sown thick enough, not otherwise,) is about five to seven tons to the acre, of the very best fodder, cattle eating all the stalks; and by the most liberal estimate of labor, interest on land, and cost of seed, I have never made it cost more than two dollars a ton—often not more than a dollar and a half. This crop may be sown right after the usual time of planting corn, and before hoeing commences; and may be harvested directly after the usual harvests. One load of it is worth more than two of common corn-salk fodder. My neighbors all around are astonished at the advantages I derive from the crop, and resolve to try it themselves; but when the usual time arrives for sowing it, something prevents, or they have no land to spare, and it is neglected. Because I have no land to spare, is the very reason I adopt this course; for with one acre, I get as much of better fodder as is usually obtained from four or five acres of meadow.

The use of ashes, plaster, domestic pourette, and muck, I find very beneficial in the absence of a large supply of common manure; and the use of the subsoil plow lately commenced with, I doubt not, be very advantageous. X. Y. Z.

—*Alb. Cult.*

#### *How to increase the Fruitfulness of Orchards.*

—Alkaline or ammonical preparations, have been applied to young trees, as well as to old ones, for the purpose of stimulating their growth, and accelerating their fruitfulness, such as whitewashing their trunks and branches, rubbing them with soap-suds, and spreading round their roots lime, gypsum, charcoal, soot, ashes, &c; and "human urine," says Columella, "which you have let grow for six months, is well fitted for the shoot of young trees. If you apply it to vines, or to young apple-trees, there is nothing that contributes more to make them bear an abundance of fruit; nor does this only produce a greater increase, but it also improves both the state and flavor of the wine and of the apples."—*Am. Ag.*

## Potato Starch Manufacture.

In a former number of the *Cultivator* we recommended such of the farmers whose potato crops indicated symptoms of decay, to manufacture them into starch. This advice was given to a friend, about three weeks before any of his crop was effected, which amounted to between five and six thousand bushels. We took a good deal of trouble to point out to him the cause of the disease, so prevalent in this crop, and brought under his notice some hundreds of the black insects, the recently punctured leaves, and those that were completely dead. We almost convinced our friend that our opinions were well founded, but still he could not help but believe that a large portion of his then valuable crop would escape the disease. Our gratuitous advice was unheeded; and the farmer, instead of realising a profit of £300 from his crop, will have to purchase his seed the ensuing spring. The entire crop has proved, as we anticipated, a total wreck.

The manufacture of starch, from the potato, has been carried on to a very great extent during the past ten years, in the State of Maine. To give our readers some idea of the extent of the potato starch business, in that northern, and supposed by some, unproductive region, we copy the following from the Report of the Commission of Patents:—

“Not less than *twenty starch factories* are now being erected in *one county*, viz., that of Franklin; and about one hundred rods from the centre of Merser village, are two starch factories. They are doing a *good business* for the proprietors, and also for the farmers in the vicinity, who find a ready market for their potatoes, which as a general thing, is as profitable a crop as is cultivated.

“The starch made is of first-rate quality. It is principally taken to Massachusetts, where it is readily marketed, and consumed mostly in the calico and cotton factories.

“We are informed that one of these factories manufactured into starch the past season, rising 18,000 bushels of potatoes.

“Starch factories are springing up all over the country. Three are under process of erection in Stark’s, at different points. There are now being completed, and being erected in Somerset county alone, ten starch factories.

“Here are thirty five of these factories, in only four counties of Maine; giving to the farmers in their vicinity a market for their potatoes to the amount of about six hundred thousand bushels yearly, at fair prices, combining the manufacturing and agricultural interests of those counties in a very remarkable degree. The efforts of the proprietors are being crowned with merited success.”

We bring the foregoing facts before our readers at this time, not with a view of recommending a similar course at this particular crisis, but for the purpose of shewing the advantage of a united and energetic movement in carrying out any improvement, whether it be connected with agricultural or manufacturing operations. It must be pretty well known to most of the Canadian farmers, that the writer is of opinion that the potato epidemic is caused by an animalculæ of about the size and appearance of the common black *flea*, and that it is possible to prevent its depredations by the use of strong alkaline substances upon the leaves of the plants, when the first symptoms of disease in the leaf is visible. The habits of this, until recently, unknown insect, is yet but imperfectly understood; it is highly probable, however, that it deposits its larvæ in the tuber; if this should be found to be true, possibly the liberal application of lime to the tubers would be instrumental in destroying the larvæ in the same manner that alkaline substances prevents smut in wheat. It possibly may turn out, that no application that man could employ, would have the influence of destroying the insect in question; and to prevent any serious loss in the cultivation of this crop, it would be wise for the farmers to be cautious and plant only a small portion of land with this crop. In the course of another year the whole problem may be clearly solved, and we strongly advise every farmer who experiments with his potato crop, to do so in a manner that will secure him from sustaining much loss. It is better to be deprived of this valuable edible, rather than cultivate it extensively, with a prospect of sustaining loss. It is our firm opinion, that the cause of the disease may be removed; but as this is only the opinion of an individual, it would be unwise for the public to make large risks, for fear that the results might prove disastrous.

*Destroying Rats.*—Corks, cut as thin as six-pences, roasted or stewed in grease, and placed in their tracks; or dried sponge in small pieces, fried or dipped in honey, with a little oil of rhodium; or bird-lime, laid in their haunts, will stick to their fur and cause their departure. If the rat be caught, and well rubbed or brushed all over with tar and train-oil, and afterwards put to escape in the holes of others, they will disappear. Poisoning is a very dangerous and objectionable mode.

The Jerusalem Artichoke a Substitute for the Potato.

Early in the season I furnished an article on the value of *Helianthus tuberosus* as an article of food to supply the place of the Potato, and it is with satisfaction that I now bring under notice the character of the substitute, which I am happy to state is found to be superior to the principal.

I forward a few roots, just as they were dug, with the tubers still attached to the stem, so that it may be seen what cultivation can accomplish with this much neglected plant; and, as an instance, of a plant actually grown in Britain by laboring men on poor soil far surpassing the potato, for the following reasons:—The haulm of the potato has always appeared to me to be an immense drawback from its importance as a profitable crop; not so with the *Helianthus*, for if it produced no tuber at all, it would still be the most valuable fodder-plant grown in this country, far surpassing, in weight of green food, Bokhara Clover or the like. Now, this is no hasty saying; for I have carefully weighed one square yard of the stems of the *Helianthus* and found them to be 32 lbs. weight, and this square yard was a fair average of the crop, and taken out of the middle of a piece not richly manured or highly cultivated, but that had come up from the small sets left in the land after the last year's crop had been gathered in. This circumstance is of considerable value, as showing to the agriculturist the important fact, that this crop wants no scientific tillage to produce a crop, and requires no small pains to prevent it from growing, and that most luxuriantly, in any reasonable locality.

Now, only consider the following simple fact, and compare the amount with other fodder:—30½ yards, or one pole, yield 968 lbs. of green food; that is, nearly half a ton from one pole of land, and gives in clear weights 69 tons to the acre, or about three times the weight of a good crop of Swede Turnips; and this, be it remembered, is altogether free of the tubers or main crop, and is merely the haulm, which in the potato, would be offal. I have given the leaves of the *Helianthus* to the goat, the pig, and the ass, and these agree that it is good, and eat it with avidity. When the cottager kept a pig, and grew potatoes, he was obliged to give the pig the tubers, which tubers were the only eatable part for man and pig; but in the *Helianthus* there is a line drawn of distinction, at the surface

of the ground; the upper part is food for the brute, while the under-ground stem contains flour (inuline) for man.

As regards the various modes by which the stems of this plant may be prepared and preserved for the food of animals, that is not in my department, although I could point out chaff-cutters or turnip-cutters that would slice them into sections as thin as wafers, and steaming apparatus that would reduce them to jelly. I prefer leaving that, however, to the proper parties, as I have neither the means or the leisure to carry the subject beyond my own line, namely the line of cultivation. I have picked out the sample sent from those that were most compact, and would beg to state that the rich, deeply-trenched land, caused the *Helianthus* to run to strong stems, thick and branching, and the tubers from such stems were placed deep and wide in the earth, and by no means equalled in weight of crop of tubers the less luxuriant plants. The plants on the very poorest soil grew just the reverse, and the tubers were nearly globular in form and grew close to the stem, whereas the rank stems produced elongated tubers on very long stolons. The sample is from neither of these, but from the medium quality of land, or what would be called good light potato land, one spit deep on the new red sand-stone. The plants were grown on demidykes or raised beds, as recommended and shown by an engraving in "Forsyth's Brochure," and stood in proportion to the land thus:—Two rows to every 6 feet, and the plants stood about 10 inches apart in the row, and supposing the whole field to be equal to the medium soil which produced the sample, there would be about 15 tons to the acre of good usable food for men; and when we compare the analysis given by chemists of the *Helianthus* and the potato, we shall find a heavy balance in favor of *Helianthus*, as being more nutritious in proportion to its bulk than potatoes. And lest the taste or the cookery should prove a stumbling-block to the introduction of this auxiliary to the potato in the eye of the household matron, I must remark in passing that *Helianthus* is second to none in making an "Irish stew," and this auxiliary to the potato (for I have not so far given up the potato as to speak of its successor as its substitute) will not only yield the tuber to make the Irish stew as the potato does, but it will yield fodder to fatten the mutton or other flesh meat to form the chief in-

ingredient, namely, the flesh, which I regret to state has been too thinly strewn in Irish soups for many years, and this is a feat that the fodder of the potato never could achieve.

ALEX. FORSYTH.

Alton Towers, Oct. 26.

—*Ag. Gaz.*

#### House Plants.

Plants are housed for the sake of their verdure and bloom during winter; or, simply to protect them from the frosts. Our first criticism is, that these two separate objects are, to a great extent, improperly united. Tables and window stands are crowded with plants which ought to be in the cellar or in a pit. Plants which have bloomed through the summer will rest during the winter. To remove them from the heat and dust of the parlor—to place them in a dry, light, warm cellar, will certainly conduce to their entire rest, and the parlor will lose no grace by the removal of ragged stems, falling leaves, and flowerless branches. When a large quantity of plants are to be protected, and cellar room is wanting, a pit may be prepared with little expense. Dig a place eight or ten feet square, in a dry exposure. The depth may be from five to six feet. Let the surface of this chamber be curbed about with a plank frame, the top of which should slope to the south at an inclination of about three inches to the foot. This may be covered, with plank, except in the middle, where two sash may be placed. The outside of the plank may be banked up with earth, and if light brush or haulm be placed upon the top, in severe weather, it will be all the better. The inside may be provided with shelves on every side for the pots, and thus hundreds of plants may be effectually protected. During severe freezing weather the sash should be covered with mats, old carpet, straw, or anything of the kind; and in very cold weather this should not be removed during the day time; for if the plants have been touched with frost, the admission of light will destroy or maim them, whereas, if kept in darkness, they will suffer little or no injury. Several families may unite in the expense of forming a cold pit, and thus fill 't with plants at a small expense and very little inconvenience to each. *Very little*, if any water, should be given to plants thus at rest.

Even where the plants are wanted to bloom in

the parlor late in the winter, it is often better to let them spend the forepart of the winter in the cellar or pit.

Our second criticism respects the *character* of winter collections.

The most noticeable error is the strange crowd of plants often huddled together, as if the excellence of a collection consisted in the number of things brought together. Every thing that the florist sees in other collections, has been procured as if it would be an unpardonable negligence not to have what others have. Hence we sometimes see acres of plants, very different in their habits, requiring widely different conditions of growth, reduced to one regimen, viz: a place near the window, so much water a day, and one turning round. This summary procedure, of course soon results in a vegetable Falstaff's regiment; some plants being long, sprawling, dangling,—some dormant and dumpy; some shedding their leaves and going to rest with unripe wood,—some mildewed,—a few faintly struggling to show here and there a bewildered blossom. In such a collection the eye is pained by the entire want of sympathy arising from jumbling together the most dissimilar kinds; from the want of robust health, and from the entire disappearance of that vivid freshness and sprightliness of growth, compact while it is rapid, which gives a charm to well managed plants.

All plants which are not growing, or for whose growth your parlours are not suitable, should be put into the cellar, and allowed to stand over in a state of rest. According to your accommodations select a few vigorous, symmetrical, hearty, healthy plants for the window. One plant well tended, will afford you more pleasure than twenty half nurtured.

In our dwellings, one has to make his way between two extremes, in the best manner that he can. Without a stove, our thin-walled houses are as cold as an ice-house, and a frosty night sends sad dismay among our favorites. Then, on the other hand, if we have a stove, the air is apt to be parched and unwholesome, fit for salamanders, fat and torpid cats, and dozing grandmothers. There is not much choice between an ice-house and an oven. *There can be no such thing as floral health without fresh air, and enough of it.* This must be procured by frequent ventilation.—*Far. & Gard.*

## Points of Oattle.

The rump-bone, when the beast is in a lean state, should be about two inches off, and the upper part of it level or even with the under side of the tail. When the rump bone lies near to the tail, it shows the smallest quantity of fat laid on that part; but the general dislike to this is proved by the name of "Tom Fool's fat" being given to it. When narrow in this part, there is always a want of substance and lean flesh between that and the hip, and a part between them where the fat of the two points does not join together, whereas when the rump is farther from the tail the fat is continued from it to the hip. The distance from the hip and rump should be long and full of lean flesh; the hips should be wide, especially those of a female, which should be wider in proportion than those of the male. The shape of the hip is difficult to describe, but should be something like a round-pointed triangle, with one end hanging downwards, and on putting the fingers on to the centre a hollow will be found. The loin should be flat and wide; and when lean, two knobs or pens should be felt, which when fat, will be the base of two ribs, called false ribs, which connect the hip and rib together in mass. The part commonly called "the space" from the hip to the ribs, is generally recommended to be short; but still it must be borne in mind that the beef on this part is of more value than any other; and if the loin be flat and wide, and the rib high and round, no ill effects will proceed from a moderate length of space, and it unquestionably gives that length and grandeur to the character of an animal which is very desirable; it is the want of a wide loin and round rib, and not the length of space that causes gut. The rib should come well out of the back, and be broad, round and deep. On putting the fingers and thumb on each side of the rib, and drawing them together, the skin should be thick, pliant, and mellow, and the hand be filled with long soft hair, and the feel underneath should be smooth and pleasant. The sensation derived from a fine touch is delightful to an amateur breeder, but cannot be defined; few things denote a good hardy constitution more than a soft thick skin, full of long hair. Putting the finger and thumb on each side of the rib as above described is called "handling" in the north, but in the midland and southern counties it is generally called "quality." Whether that term had its origin at Smithfield we need not inquire, but

certain it is that Mr. Charles Colling knew of no such word as applicable to inclination to fatten. "Quality" is frequently used to denote firmness of flesh, and sometimes it is misapplied, as in hardness of flesh, but seldom used to signify inclination to fatten; the mistake in this particular has done much harm to many herds of Short-Horns. Let handling and quality go together in a fat animal, and a good bred Short-Horn will have waxy beef, under a loose, pliant hide, full of soft, long hair, but in a poor beast, "handling" is the only test to discern the inclination to fatten. Handling is the most important subject we have to consider; it is the grand characteristic of a Short-Horn, [for other beast designed for fattening] Of what value would an animal be, possessed of perfect symmetry, if he could not be made fat without extraordinary keep? It has been said above, that it was Mr. Charles Colling's fine touch in this particular that enabled him to bring the Ketton Short-Horns to their unrivalled state of excellence; its importance has led me to dwell upon it at some length; but it is impossible to describe the kindly *feel* which is conveyed to the senses by the *handling* of a first rate Short-Horn; yet the knowledge of it is absolutely necessary for a breeder to possess before he can bring his herd to any high state of excellence.

The next point under consideration is the crop, in the shape of which, width of the back, and roundness of the rib, but in a less degree, should be continued forward so as to leave no hollow behind the shoulders. The shoulders on the outside should have a roll of fat from the lower to the upper part of it; the nearer to the top, the more closely it connects the crop and the collar in front of the shoulder together. In the anatomy of the shoulder, modern breeders have made great improvement on the Ketton Short-Horns by correcting the defect on the knuckle or shoulder-point and by laying the top of the shoulder more snugly into the crop, and thereby filling up the hollow behind it. This is an important improvement, but it may be questioned whether the great attention that has been paid to this has not been attended by the neglect of some other valuable parts, for we now seldom find those long hind quarters, so peculiar to the Ketton Short-Horn. Shoulders should be rather wide at the top; that is, they should not lie close to nor be quite so high as the withers; for when they are narrow at the top, and too oblique in the shape, they never cover

with fat over them properly, and the neck of such animals is often too low. Mr. Mason, of Chilton, whose attention was first drawn to this point, with his wonted skill, succeeded to admiration; the prominent breasts and oblique shoulders of his beasts, on a side view were perfect; but the shoulders were close and narrow at the top, and did not load with fat. The first evidence of this, of notoriety, was in the beautiful cow Gaudy, (whose picture is to be seen in the first volume of the "Herd-book,") who, when slaughtered was barely covered in this point, although very fat in all other points.

The neck and head are not handling points; but I will briefly notice them before I turn to the lower part of the body. The neck should be thick and tapering towards the head; a thin neck is strong evidence of a want of flesh and substance in other parts. There are various opinions on the shape of the head; some prefer it to be long and lean, whilst others approve of its being thick and short; but to be broad across the eyes, tapering considerably below them to the nostrils, which should be capacious, with a cream or flesh-colored muzzle, will be nearly correct; although it is but right to state that there are many well-bred Short-Horns with dark muzzles. This has been considered by many to be a recent introduction, through some inferior cross; but without denying that, let it not be forgotten that some of the early Short-Horns were not entirely free from it, although not very common; but the sire of Foljambe could not boast of much delicacy there. The horn has often been called a non-essential, and in some respects that may be true; yet it must be admitted that a small, moist, white or yellowish horn, coming well off the head with a graceful circle, and with a downward tendency at the end in a female, and an inclination upwards in an ox, contributes much to the character and appearance of an animal, and denotes a feeding propensity. The eye has had its fashion at different periods: at one time the eye high and outstanding from the head, and at another time the sleepy eye sunk into the head; but these extremes have merged into the medium of a full, clear, and prominent eye, with a placid look. The neck-vein forms a collar in front of the shoulder, extending from the upper part of it down to the breast end, connecting the fat on the shoulder with the fat on the breast, thereby promoting a uniform covering of fat throughout every part of

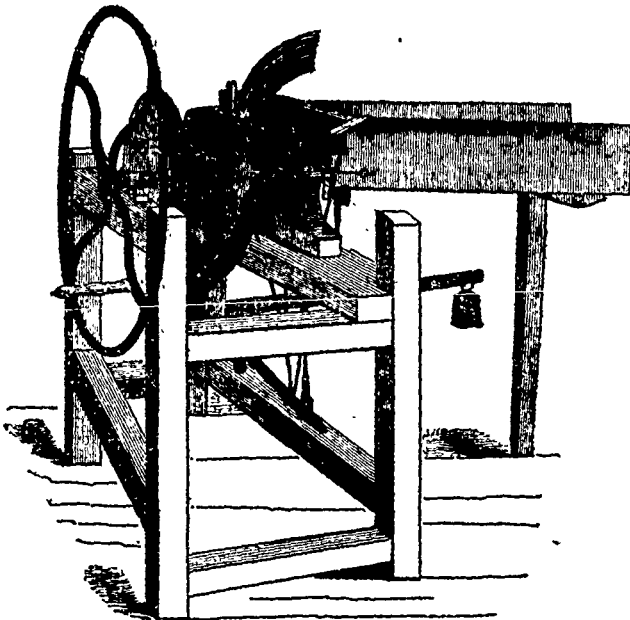
a beast, commencing at the rump, and proceeding along the back to the hip, loin, rib, crop, shoulder, and breast, without patch, or any one part having excess of fat beyond that of its neighbor. The breast should come prominently out from between the fore legs, and extend down to about two or three inches of the knee-joint, and its width should never be lost sight of. An animal with a *wide back and a wide breast* cannot fail to have substance, fore flanks, wide fore legs, and other indications of a strong and vigorous constitution. The buttock is a part that is not handled as a fat point, but should not pass entirely unnoticed, although in the *best bred* Short-Horns there is little occasion for caution against the black flesh in this part, which some other animals have; but a want of lean flesh is as great an evil as an excess of it; it is necessary, therefore, that there should be great fulness nearly as low as opposite the flank tapering from thence to the hock; this fulness should be on the inside as well as the outside of the thigh, and give a full twist, lining the division between the hams with a continuous roll of fat to the next point under the belly.

Hitherto my observations have been confined to feeding propensities only, without any regard to the dairy. It is notorious, and much to their detriment, that many of the most superior Short-Horns do not possess that quality in an eminent degree. The annual loss to the breeder on each cow is very considerable, when we see that of two cows consuming an equal quantity of food, one gives six gallons of milk per day, and the other gives two only, this loss of milk will require much gain in beef to compensate for it. Cows for the dairy require to be of the same shape, and possessed of the same feeding propensities as have been attempted to be described above, with the addition of a well-shaped udder. When in full milk, the udder should be capacious and flesh-colored, with paps standing square and at a distance from each other, the hind part to appear as if it proceeded from the twist; and it is the fore paps that give the most milk; the milk veins under the belly should be large and full. There is no test to determine beforehand whether a cow will give good milk or bad, but it is at all times very essential to rear bulls out of cows that are descended from a tribe of good milkers.—*Royal Ag. Soc. Jour.*

LET the sun's first rays shine upon your head in the morning and you will not lack a good hat to defend you from its scorching rays at noon.



## MARSHALL'S IMPROVED HAND AND HORSE-POWER STRAW-CUTTER.



This machine took the first prize at the autumn show of the Home District Agricultural Society, in the year 1845. We understand that the manufacturer has subsequently secured a patent for the invention, from the Provincial Government. The price of hand-power is £6; horse-power, £7;—and are kept constantly on hand at the Provincial Agricultural Warehouse.

## PAGE'S PORTABLE SAW-MILL AND PLANING-MACHINE COMBINED.

In the early numbers of the *Cultivator* we had occasion to make mention of this valuable machine, and subsequently announced to our readers that we would receive orders for these mills, provided that we were furnished with the necessary amount of cash. A great number of letters poured in upon us, from all parts of the province, the writers of which appeared most anxious to be in possession of the improvement, but none were quite prepared to advance the necessary funds to secure their introduction into the province. Although we have been unsuccessful in influencing some of those who evinced so much anxiety at the beginning, to take the necessary steps to have them imported into the country, still we have had hopes that some one would be found who had sufficient courage and enterprise to make a journey to Baltimore, and purchase one of Page's Saw Mills, so that the province might be benefitted from this improvement.

With a view of reminding our readers of the value of this extraordinary invention, we extract the following notice from a late number of the *Baltimore American Farmer*. The government of the United States being so strongly impressed with the intrinsic value of these saw-mills, have employed them in their navy department. The following notice is from the pen of the able editor of the *American Farmer*, and from the Hon. C. B. Calvert, of Riversdale, Maryland.

Both horse and steam power are portable, and should be, in our opinion, extensively employed in the manufacturing of boards in the densely timbered districts of Canada:—

"In a visit which we made some months since, to Riversdale, the beautiful estate of the Hon. Chas. B. Calvert, near Washington city, our attention was arrested by the operation of one of Page's Portable Saw Mills which Mr. C. has had in use for several years,—and although we had frequently seen the mill set in motion at the premises of the inventor, yet we never had enjoyed the opportunity of witnessing its performances to advantage, as in the nature of the case, it could not be operated with the same facility there, as it could be whilst placed in the forest with all the appliances annexed to it for full work—much, however, as we had before admired it, we were on the occasion alluded to, delighted with the performance, and we determined to call the attention of the public more immediately to its great value, through the columns of our journal.

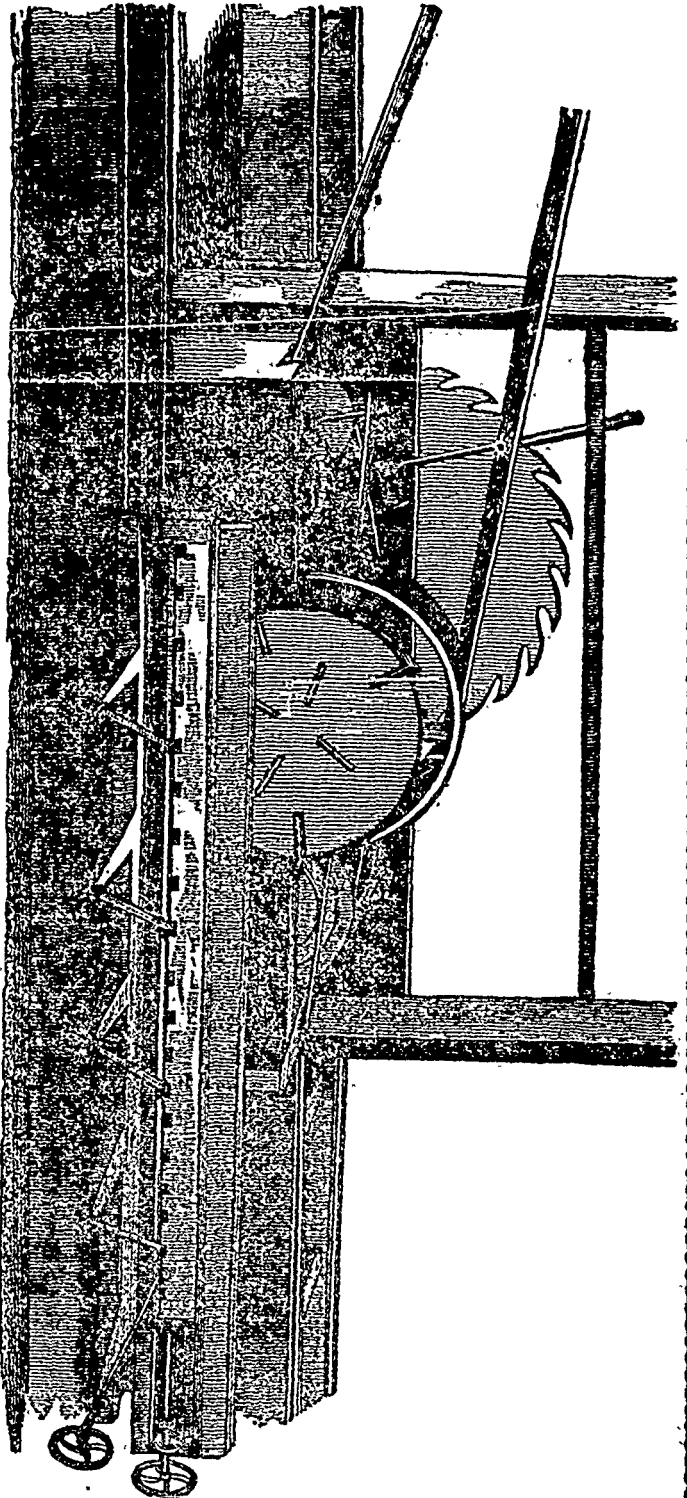
"This Saw Mill is, what its name imports it to be, a *portable* machine in every sense of the term, as it can be removed in a common waggon drawn by 3, 4, or 6 horses, oxen or mules, from one part of the woods to the other, or whereter else its services may be required, and put in operation again without delay or difficulty, thereby saving the heavy, tedious and difficult operation of transporting large logs. It is owing to the strength of its construction, not easy to get out of order, and its great simplicity, places its repair within the ability of any country carpenter or smith of ordinary capacity. To say that such a machine would prove an invaluable acquisition to any gentlemen owning timber lands convenient to market, is not to claim for it more than it deserves.

"The cost of one of these Portable Saw Mills for sawing lumber 12 feet long, including a four feet saw, is \$300. For all lengths over 12 feet, which it may be desirable to cut the lumber, \$3 per foot extra."

—  
Mr. George Page,—

Sir,—Having had one of your Portable Saw Mills, being fully convinced of its great paramount merits in operation on my estate, near Bladensburg, as a superior labour-saving machine, I take especial pleasure in bearing testimony to its value.

PAGE'S SAWING & PLANING MACHINE COMBINED.



The Saw Mill I have now in use is propelled by a steam engine of ten horse power, and is attended by six hands. With this power of steam and number of laborers, I have cut at the rate of 15-000 feet of lumber per day, and it has given me no little satisfaction to find the lumber cut with so much ease and exactness, and the Mill and its machinery so little liable to get out of repair. Such, indeed, is its simplicity, that I find no difficulty in having it tended by my ordinary farm hands; nor would I find more, should it get out of order, in having it repaired by an ordinary black-smith, or country mill-wright. Destitute of every thing like intricacy or complication in its arrangement, and having great strength of construction, there is little fear to be apprehended of its getting out of repair, and these qualities, when viewed in connection with its truly portable size, renders it of immense value to gentlemen owning forests of timber, as the facility with which it may be transported from one point to another, as the timber may be felled and sawed up, enhances its value in a degree that cannot be too highly appreciated. I believe that, if it were necessary, I could remove it twenty miles in a single day, with a team of four, six or eight horses, according to the nature of the road, or ground, over which it would have to be transported, and have it ready to operate within the course of the third day thereafter.

When I look at it in full operation; see its wonderful powers, the ease with which it executes its work, I am struck with surprise, that a Machine so simple in all its parts, had not been invented a century ago. It is, indeed, a labor-saving and time and money economising invention—one which, in my opinion, every owner of a woodland estate every rail road company and shipwright, in the country, ought, without delay, to possess themselves of. As it can be propelled equally well by steam, water, and horse-power, it will suit every location, and prove, in either, a machine of intrinsic value, whether regard be had to the saving of money or time, which latter is of equal value with the former. In new settlements too, where there is timber, it would prove a God-send to whole neighborhoods, as it might, be removed to any point where buildings might be required to be erected.

CHAS. B. CALVERT.

Do not forget to arrange your fall and winter's work so as to send your boys to school. Be kind to your flocks, and remember the poor.

#### Breeding Stock.

The *New-York Farmer & Mechanic*, speaking of the stock exhibition at the late Fair of the American Institute, makes the following statement:

"We will here take occasion to remark, who all will acknowledge, who carefully examine themselves, that our best stock is produced by crossing the breeds. No matter how good at first, experience shows that they can be made better, and it is a law of nature that all things degenerate by a continued growing from the same seed blood."

The writer of the above quotation may have seen enough to induce his belief "that all things degenerate by a continued growing from the same seed or blood;" but for ourselves, we have not learned the operations of nature. That it is possible, under some circumstances, to improve both animals and vegetables by cross-breeding, we do not deny, but a *latitude* is here given to the practice, which might be productive of great injury. According to this writer, "*no matter how good at first,*" animals may be, "*experience shows that they can be made better*" by crossing. It strikes us that the proposition involves a palpable inconsistency, for if it is "*no matter how good*" our stock may be "*at first,*" we would take such to be *perfect*; and we should like to know how perfection can be improved?

But we find these distinct races and breeds existing naturally; and, if, in the beginning, they were so well answered the designs for which they were created, as to be justly pronounced "*very good*," it seems to us that the doctrine which would breed down these lines, should be received as too much akin to that which would cause the oak to produce the pumpkin. It would throw the fair works of nature into confusion; it would unite the Caucasian with the African or the Mongolian, and their progeny with the aboriginal American: it would lead us to sacrifice the fine fleece of the Merino sheep for the sake of intermingling the blood of the coarser races; it would lead us to destroy all the distinct and beautiful breeds of horses and cattle, by mixing them together; and, in fact, throughout the animal and vegetable kingdoms, would leave nothing but hybrid and mongrels.

As to plants or vegetables, we know the idea is entertained—though erroneously, as we think—that all varieties "*run out*" if propagated continually from the "*same seed*;" and this leads

the notion of a necessity of change. A farmer obtains a variety of wheat, or some other grain, which proves to be better suited to his soil than any other; but he can only keep it a few years before he concludes "that it has been raised on his farm long enough," and he changes it for some other kind.

Now we admit that with the careless and slovenly husbandry which too many practice, this "running out" actually takes place, they get good seed, but allow it to degenerate and become adulterated by their bad management. Their land is not properly tilled; their crops are light; their grain is mixed with seed of pernicious plants; and this spurious product is sown year after year without any attempt to improve it. What but degeneracy could be expected?

We believe the grand principle of improvement, both in plants and animals, is SELECTION. Always choose the best for propagation, and improvement may be advanced to the highest practicable point.

*Alb. Cult.*

#### Canadian Agricultural College.

Mention was made in the December number of the *Cultivator*, of the probability of this Institution being established at an early period. We embrace the earliest opportunity of laying before our readers an agricultural speech, delivered before the Maidstone Farmers' Club, by George Buckland, Esq., the gentleman who proposes to found the Institution in question,—for which we bespeak a careful reading, by those of our subscribers who are desirous of seeing the farmers of Canada become an educated and influential class in the community, and also, by such as are willing to aid those who are ever ready to make any reasonable amount of risk, in placing the Educational Institutions of the country on such a basis, that these results will follow as a matter of course.

The enlightened views advanced by Mr. Buckland, are equally as applicable to Canada as to England. The period has now arrived in which it will be found necessary for the agricultural classes to employ more *mind*, in the carrying out of the practical operations of the farm, than has hitherto been the case. It is with much satisfaction that we look forward to the establishment of Agricultural Educational Institutions in the Province, believing that by the instrumentality of

this and other means that will be employed to improve the agricultural condition of the country, that its prosperity will increase in an unparalleled degree.

It often happens, that great patriotic efforts, to improve the masses of mankind, or to bring about any great changes that would affect the social or physical condition of man, are attempted by parties who may have very good intentions, but who, unfortunately for the cause they espouse, are notoriously disqualified for the difficult task they may have undertaken. Happily for the cause of agricultural improvement in Canada, in this instance this will not be the case,—for as a proof of Mr. Buckland's superior qualification for the responsible task he is about imposing upon himself, we need only mention, that the Royal Agricultural Society of England lately awarded him *fifty guineas*, for his Prize Essay on the Agriculture of the County of Kent.

*The proper time for Cutting Timber.*—Nineteenths of the community think winter the time for this purpose, but the reason assigned, "that the sap is then in the roots," shows its futility, as it is evident to the most superficial observer, that there is nearly the same quantity of sap in the trees at all seasons. It is less active in winter, and like all other moisture, is congealed during the coldest weather; yet when not absolutely frozen, circulation is never entirely stopped in the living tree. Reason or philosophy would seem to indicate that the period of maturity of the leaf, or from the last of June to the first of November, is the season for cutting timber in its perfection. Certain it is, that we have numerous examples of timber cut within this period, which has exhibited a durability twice or three times as great as that cut in winter, when placed under precisely the same circumstances. After it is felled, it should at once be peeled, drawn from the woods, and elevated from the ground to facilitate drying; and if it is intended to be used under cover, the sooner it is put there the better. Wood designed for fuel, will last much better when cut as above mentioned and immediately housed, but as this is generally inconvenient from the labor of the farm being then required for the harvesting of the crops, it may be more economical to cut it whenever there is most leisure.—*Allen's Am. Ag.*

## Education of Farmers' Daughters.

MR. EDITOR,—Sometime since, I noticed an article in your paper, signed "Ida," in which the writer freely and ably discants upon the fashionable follies of the day, and the want of a proper education in the daughters of the present ago. I consider this a most important subject, and one which ought deeply to interest the heart, not only of every mother in the land, but of all who seek the improvement of our race, and the general good of mankind. But as my limits will not admit of a general view of the education of females occupying different stations in life, I shall confine my remarks to that class least affected by our modern systems of fashionable education, viz:—*the daughters of farmers*, and shall endeavour to show, that even among them a reformation is much needed. It is a lamentable fact, that with all the advantage of circumstances, many of our farmers' daughters enter upon the responsibilities of the marriage state as ignorant of domestic duties, as the veriest devotee of fashion. I do not say this is generally the case, for I know of many young ladies, daughters of farmers, who are well qualified for wives and mothers—who combine domestic with intellectual pursuits, and are not deficient in what is called ornamental education. Yet it cannot be denied, that in many cases a sad deficiency, in regard to a knowledge of housewifery exists, and that the number of such cases is rapidly increasing. And why is it so? The wife of the agriculturist possesses superior advantages for the domestic education of her daughters. From her peculiar situation in life, she is relieved from a thousand annoyances and interruptions attendant upon those whose lot is cast amid the busy scenes of a city life. *Fashion* does not require that the wife and daughters of the farmer should spend their mornings or afternoons in the absurd custom of making or receiving calls. They are therefore in possession of rights and privileges which in other situations it would require a great degree of moral courage to assume. To what cause then, must this lack of knowledge be attributed, if not to the neglect of the mothers in teaching their daughters, those duties most important to the welfare and happiness of families? True, the deficiency in our common school system has something to do with it. It has been, and is still to some extent the case, that farmers wishing to give their daughters a finished education, have felt themselves obliged to send from

home, and in most cases a very injudicious election of schools is made. The young lady is not unfrequently placed in a fashionable boarding-school, where she is taught a mere outward show of accomplishments, and thus the expense of her education is lost. And worse still, she is made vain by her attainments, and taught to disdain the petty cares of a family, as beneath the notice of her refined and sentimental mind. And thus should she assume the responsible duties of a wife, she will most assuredly render herself and all around her miserable, unless her desire of shining in the fashionable world can be gratified. We would have farmers and farmers' wives feel, that their daughters must be educated—*thoroughly educated*. Women should occupy a more respectable station in social life, than that of a mere household drudge, or 'pretty trifle.' But until this idea of *finishing* is given up, the useful and ornamental cannot be made to harmonize sufficiently. Our agricultural men are becoming men of science; and shall their wives and daughters be behind them in the attainment of a permanent and useful education? While the son of the agriculturist is climbing the rugged hills of science, shall his daughter be carried down the giddy whirlpool of fashion? To prevent this, we would recommend that mothers take charge of the entire education of their daughters. "This," says Mrs. Hale, "If the mother have time and health for the duty, is the richest boon she can bestow."

By this we do not mean that children should not be sent to school, the aid of schools is usually necessary in commencing systematically, a judicious course of study, and from the age of six to fourteen at least, children of farmers should be sent to common school.—But let the mothers take a deep interest in all the studies of her daughters, watch carefully over their habits of thought as well as conduct, and never permit them to think that her superintendance is unnecessary, because they have a teacher at school.

At the age of fourteen it is generally thought that a young lady is old enough to be sent to a boarding school. But would it not be much better if from this age daughters were educated entirely at home? If the mother is incompetent to the task, the assistance of a private teacher or master when necessary, could be obtained at less expense than would be required for sending the daughters abroad. While the advantages se-

road both to mothers and daughter would be any and important. In this system of domestic education, the mother would find a strong motive to retain those accomplishments in which she wished her daughters to excel, and the young lady by seeing her mother interested in intellectual pursuits, would find that they were compatible with household duties, and when married she would be likely to enter upon those duties with much more zeal and energy than one who had been taught to view them as distinct and incompatible with each other.

I am aware that I shall here meet with objections from many farmers' wives. "We have not time" say they "to attend to these duties." "We have large families and our domestic labors take up so large a portion of our time that we cannot attend to the education of our daughters." The mother of Mrs. H. M. Tracy might have urged these objections. The wife of a farmer in moderate circumstances, mainly dependent upon her own exertions for household comforts, while the father toiled hard to provide the necessary maintenance for his family, and to gain somewhat to bestow upon the needy and destitute, yet by economy in the regulation of her domestic establishments, she gained sufficient leisure to study for the purpose of instructing her daughters, and thus she not only secured an advantage to herself, but has now the unspeakable satisfaction of seeing her home-educated daughters stand high in the ranks of *American writers*, both prose and poetic. But to those who make such objections let me say, that in this system of domestic education you secure to yourselves the assistance of your daughters in your daily avocations, which will more than compensate you for the time given to their instruction; and though their progress may not be as rapid as at our best schools, yet we believe that a young woman who studies two hours each day under the eye of a judicious mother, and spends the remaining part of the day in attending to domestic duties, and in teaching the younger members of the family, will not only be in possession of a more healthy and vigorous tone of constitution, but will be more truly wise than those who are learned in the usual fashionable ways, to say nothing of the greater amount of happiness secured by such a course. Still if there be farmers who must educate their daughters abroad, we would recommend that they send them to Manual Labor Schools. Such schools

are well calculated to correct the fashionable feeling that all labor both manual and mental, is mere drudgery. We have good schools of this description, which farmers would do well to patronize. But do not, if you regard the welfare and happiness of your daughters—do not send them to a fashionable boarding school. MARY, North Rochester, O., Oct., 1846.

REMARKS.—We think a majority of our readers will coincide in the main with the opinions advocated by MARY; but it occurs to us there is need of a much higher degree of education among mothers, before they can generally be competent to undertake the superintendance of the education of their daughters. On this point we shall publish a selected article before long.

We fully concur in the opinion of our correspondent, that farmers should by no means send their daughters to be educated at a "fashionable boarding school where they are taught a mere outward show of accomplishments." We do not admit, however, that this is the true character of many of the boarding schools or seminaries in our land, and we have yet to become acquainted with one in Ohio to which we think the description is fully applicable. However, we leave their advocates to defend them, if necessary, well convinced they are abundantly able, and offering them the use of our columns if they desire it.—*Ohio Cult.*

*The late epidemic among Horses.*—It is known to most of our readers, that a very fatal epidemic has prevailed extensively, the past season, in the country around the city, among horses. A medical friend, in whose opinions we have great confidence, and who has made some dissections, informs us that he considers the malady a malarious congestive fever, affecting specially the head. General bleeding has not been useful. The treatment from which most advantages appeared to be derived, consisted in the topical abstraction of blood from the head (that is, bleeding about one quart,) and the application of cold water to it, by means of cloths bound upon it; and internally the use of calomel, about two drachms daily, till the horse recovers. The disease has now ceased. Should it return, our friend thinks that the best means of preventing its ravages, will be to confine the horses to stables, especially during the night.—*Am. Ag.*

## Lecture on Agricultural Improvement.

On the 21st November, Mr. Buckland, of Benenden, delivered a lecture on the above subject, before the members of the Maidstone Farmers' Club (C. G. Whitaker, Esq., in the chair,) at the Mitre Inn, Maidstone. The attendance of members was unusually large, and the earnest attention which was paid to every sentence of the lecture, and the hearty applause at its conclusion, gave evidence of the deep interest which it created. The following must be considered as rather an outline of it, than a full report.—

Mr. Buckland, in commencing, said that some mistake had arisen by which the proposed lecture had been announced as on agricultural chemistry, on which subject he did not feel himself competent to lecture; and that even if he had been well versed in agricultural chemistry, he could not have expected to do justice to so important a subject within the limits of a single lecture; he had, therefore, preferred taking up the general question as to the means we possess of improving the culture and increasing the produce of our native country. He would wish to call their attention to the means by which agriculture might be benefitted by the application of science and art. It was altogether superfluous in him to say a single word on the importance of the art in which they were all engaged. Of its antiquity it might be said that it was coeval with the physical wants of man. The art on which thousands depended for their daily bread, and in which the largest portion of the capital of the world was engaged, could not but be considered, by every reflecting person, as of the first importance. Hence it had been found that persons who had felt deeply for the wants of the population, and also political governments had always looked on agriculture with a favourable eye. There were periods, however, in all countries, when agriculture seemed to claim especial attention. It might be easy, in new countries, like America, and some countries in the southern hemisphere, to raise provisions for their few inhabitants. This was the case with Great Britain centuries ago, when our agriculture was in a very imperfect state, and when scarcely corn enough could be raised to feed the people; and when our commercial and manufacturing operations became developed, when the period arrived in which men left the country districts for the manufacturing towns—when the great manufacturing emporiums, such as Liverpool and Manchester, sprung up,—then a proportionately increased demand was likewise created for agricultural produce. They all knew that for some years past they had not produced sufficient corn for feeding the people of these realms, without the importation of foreign corn, and the fact was still staring them in the face, that we, as a people, were not merely agriculturists, but were also largely engaged in commerce and manufactures, and that our people are still rapidly increasing every day. The important question which had to be answered, and which demanded

the attention not only of the legislator but of the practical farmer, and indeed, every man who had an interest in the welfare of his country, was whether the soil of Great Britain can be made to meet the increasing necessities of this increasing population? He was not going to give a dogmatical answer to the question, but his own belief was, that if they besurred themselves, if they entered into an united effort, landlord, tenant, and labourer,—they could make the soil of England not only support its present inhabitants, but double and treble that number. This was the question, to an examination of which he intended to apply himself, and he requested their utmost diligence in doing so. One cause why agriculture had not made such rapid progress as the manufactures and the arts had experienced, was the peculiar position of those who were engaged in it. The tillers of the soil, unlike the manufacturers, must necessarily ever be placed in an isolated position. They had not hitherto been much in the habit of meeting together, and they found frequent meetings very inconvenient, when compared with the facilities enjoyed in this respect by the inhabitants of towns. In consequence of being so much scattered, agriculturists had become too much wedded to old practices, not having been able to make themselves extensively acquainted with the improved modes of other countries. Perhaps a greater amount of prejudice existed amongst farmers from this cause than from any other. Still times in this respect are very much changed, and meetings, like this now assembled, composed of members who lived many miles apart, and on all sorts of different soils, in which they met month after month to discuss agricultural subjects, proved that they were now in the right direction. Agriculture had, heretofore, been followed more as a business than a profession, and they had heard till recently that a man might make a farmer. It had also been said that the farmers were not a reading class, but it must be considered that they had till recently, read no agricultural literature, for agricultural literature was *sui generis*, and could not be expected to meet with any great encouragement or support out of the farmer's own circle. They were now, however, progressing in this respect, and had several excellent agricultural periodicals. Not only had they the Transactions of the Royal Agricultural Society of England, and of the Highland Society, but the Farmers' Magazine, and he was pleased to see a disposition on the part of the agricultural press, generally, to help forward and promote the improvement of the art in which they are engaged. In reference to the mistaken notion that any man might make a farmer, he would say that he had known a man of great experience and ability, who had commenced farming under that impression, but who had so soon found them insufficient to form a practical farmer. What was agriculture? It was an easy thing to say that agriculture was the mode of raising the largest quantity of human food with the least expense, without injury to the soil; but this was

not so simple a thing as many persons imagined. Agriculture, to be understood, must be viewed in various relations. First, as to the soil from which they raised their crops. The soil consisted of two portions, the organic and inorganic constituents. Whence were the inorganic portions of the soil derived, and what was the cause of its almost endless diversity? For this knowledge they must be indebted to the researches of the chemist and the geologist. The soil had been formed from the adjacent rocks by the chemical action of the atmosphere, by which they had been abraded and worn down, at the same time that various organic substances were mixed up with it.

Agriculture has many important relations, of which it is essential that the practical farmer should have some knowledge, and he who aspires to the advancing of his art must draw largely upon the wide range of the physical sciences. There is the soil which the business of the farmer calls upon him to till. How is that soil formed? of what does it consist? does it contain anything injurious to the growth of plants? or is it in special cases wanting in some important fertilising ingredient? these are questions which chemistry and geology can alone answer. For example, how various is the physical, and therefore the agricultural, character, of a wide range of country, taking the spot on which we are met as a centre. Within a few miles of Maidstone, on either side, there are to be found the representatives of some half dozen distinct geological formations; the soil and productions, whether natural or cultivated, on each of these belts of land, are in some respects different from the rest as their respective organic remains, by which they are mainly distinguished by the geologist. How different both in mechanical texture and chemical composition are the white dry porous chalk hills, and the yellow adhesive clays of the Weald—and the elevation of the ragstone, forming as it were an intermediate link, is dissimilar to both. Sainfoin and lucern, for instance, which produce such luxuriant crops on calcareous rocky soil, attain but a poor stunted growth on such as are aluminous—the Weald valley for example. Now these, and a thousand similar facts are well known to the practical agriculturist; upon the knowledge of them his whole art is built; so that strictly speaking every farmer, whether he knows it or not, is more or less a geologist and chemist. How important is a correct classification of soil. The usual terms, sandy, clayey, or loamy soil, are too vague and imperfect, even sometimes for the purposes of popular description, much more so than for practical guidance. It is to geology, aided by chemistry, that we must look for such a classification as shall meet the wants, both of scientific and practical agriculturists.

Then, again, agriculture bears most important relations to vegetation, a subject which brings us within the range of organic life. The main object of the farmer is to cultivate and mature plants proper as food for animals or men. What a field

here presents itself for observation and research. What is a plant—in what respect does it differ from inorganic matter, a clod of earth or stone? How is its structure built up—by what means does it support life and growth, whence the materials of which it consists, and what are the laws of its decline and death? These and many other similar inquiries come within the province of scientific agriculture. Hence the importance of botany and vegetable physiology—or the classification and structure of plants. What subject is of more importance to the practical farmer than a knowledge of the nature and composition of manures, which are the food of plants. It is found, upon the most careful chemical analysis that soils differ materially as to their saline and organic matter, as well as mineral ingredients. the same is true of the composition of different vegetables, not only of their genera and species, but of their varieties likewise. The ashes of the inorganic matter of wheat straw left by burning in the air, differ widely, in the proportion of these substances of which they are made up, in the same variety grown on different soils. How necessary is it then to an enlightened and successful system of practical husbandry, that there should be correct chemical analysis, both of soil, manures, and plants, accessible to farmers. The improved varieties of vegetables, and the cereal grasses by cultivation, climate, and manuring, are as intimately dependent upon the laws of science or nature, as they are promotive of the comforts and happiness of man. If an improved variety of wheat for instance could be obtained that would produce under our ordinary cultivation only one bushel per acre more than what is at present obtained; England would be independent of foreign countries for corn, for many years to come. That such a result, or a much larger one, is within the reach of an advancing science, cannot be doubted.

To proceed a step higher in the relations of agriculture, there are the breeding, rearing and fattening of animals. Only think of the immense wealth this country possesses in numerous breeds of sheep, horses and cattle. The least improvement effected in any of these animals, produces a very sensible effect on the condition and finances of the country. How different the thin, coarse, unsightly animal—a cow or a sheep—of former days, from their improved and symmetrical successors, which now grace the fields or farm yards of Great Britain, the pride and boast of their owners.

The lecturer alluded in terms of eulogy to Mr. Selmes of Beckly, who has done so much to improve the Sussex breed of stock, which he, the lecturer, had recently had an opportunity of witnessing at Mr. Selmes's sale of live stock.—Not only is some food more nourishing to the animal system than other kinds, but it is well known to practical men that exercise and warmth have much to do with these mysterious processes.



A calf requires not only nutritious food but plenty of room and exercise during the period of growth; but when he has reached maturity, as an ox to be fattened, then confinement and the least exercise compatible with health, are the chief objects. A warm and equable temperature is known to be favorable to fattening; and much may be done by artificial arrangements to effect this purpose. It is true science has as yet done but little for the practical breeder and grazier; yet that little which is the result of yesterday, presages far greater things to come. The theories of Liebig are well worthy the gravest attention of practical men; they are as simple as they appear to be satisfactory. Upon these matters confessedly abstruse and difficult, many existing errors have no doubt to be removed and very much yet is to be learnt. He (the lecturer) thought, however, that sufficient had been said to show the connexion which agriculture had with zoology and animal physiology.

Another important part of agriculture is the cultivation of the soil. This cannot be done without instruments and machines. In every effort either to dig or plough the ground, a certain amount of power or force is required and expended. Now the economy of a farm requires that no more power should be employed than is absolutely requisite for the purpose to be effected; such a waste of power is a waste of money. Take that indispensable article, the plough, for example. The objects sought by the use of that instrument are the thorough moving of the ground to a certain depth, and regularly turning over the furrows at a uniform angle. Now the question is, what is the best form of those parts of the plough that come in contact with the ground, so that the object may be gained by the least amount of friction, which would consequently require a proportionately diminished expenditure of force. It will be at once seen that this is essentially a problem of mechanics, and the construction of every agricultural implement and machine, together with their practical use, involves considerations connected with mechanics and mathematics. Hence the desirableness of farmers possessing some acquaintance, at least, with both. In such an implement as the plough, much of the ceremony of power depends upon the line of draught and construction of the mould board. At the late Southampton meeting, there were exhibited upwards of a hundred different sorts of ploughs. Now it is impossible for such fertile, inventive genius not to bring out, now and then, some capital improvements, that will stand the test of practical application. Every farmer knows that different soils require somewhat different implements of cultivation; so that what will do well in one part of the country, or on a different soil in the same neighborhood, will not answer in another. The wheel or foot plough of this country is not so well adapted to the turnip soils of England or the Lothians of Scotland as the light improved two-horse Scotch ploughs; which, on heavier soils, would be useless. A heavy soil farm requires a greater number of different implements than in one of a lighter description. On the stiffer soils of Kent, for example, lighter ploughs with less horses, might be as effectively employed

in summer ploughing after the soil has been well pulverised. There can be no doubt that sometimes waste animal power, but not to the extent that some writers have asserted. Much depends on the nature of the seasons, so that it is impossible, as every practical man well knows, to lay down any absolute rule that shall apply to all cases upon heavy lands.

Again, agriculture is not only related to, but almost to be said to be the creature of climate. Temperature and moisture, which in great measure depend on elevation above the sea level, and the physical character of the country, are among the essential elements of the vegetation and maturity of plants. The imponderable agents, heat, light, and electricity, play an essential, although not in many respects well understood, part in the economy of agriculture. Since agriculture is so immediately dependent on the seasons, which in these islands are proverbially fickle, it must ever remain more or less an uncertain art. Theoretical men too often overlook this fact. Every farmer well knows, from his own conscious experience, how materially his art is influenced by weather and everything that is comprehended in the general term climate; so much indeed that a large portion of his waking moments are spent between hope and fear. Hence the importance and application of meteorology and physical geography. Now, will any one say, after this brief and very imperfect review of the nature and relations of agriculture, that any man can make a farmer? There was never a greater mistake, that thousands know to their sorrow. Our art, confessedly the most important, is nevertheless, the most complicated and difficult of all arts; dependent upon the ever changing seasons as already shown upon some acquaintance at least of those who profess, with several of the physical sciences. The great question he (Mr. B.) proposed to answer was how this kind of knowledge can be best imparted to the farming classes. A great general want of this country, is a suitable education for those who are destined to cultivate the land. The establishment of good parochial schools in which the rudiments of the sciences connected with agriculture should be taught and experimentally illustrated, large gardens, cultivated by the children, might be made, under an efficient master, the means of forming in the young the valuable habits of industry and correct observation; while the general theory of cultivation might be practically taught. He was far from thinking that no valuable efforts had been made successfully on behalf of village education. What was chiefly wanting was special instruction and training in such matters as would make the children, when they grow up men, useful and intelligent workmen. In this respect the Scotch parochial schools left us far behind. Professor Johnston has lately written a catechism of agricultural chemistry and geology, especially for the use of these schools, and it is well known that Scotchmen make the best agriculturists all over the world. In regard to parochial schools England possesses an advantage beyond perhaps any other country, which if properly improved, would be fraught with benefits; he alluded to our having, spread over

entry, a body of highly educated men, the clergy, whose higher duties the general superintendence of such institutions might not be thought incompatible.

He would next recommend for the sons of the middle and upper class of farmers the establishment of agricultural colleges, with example farms attached. All other classes of the community receive special instruction except farmers. There are no good reasons for this exception, but many substantial ones against it. The lawyer, the physician, the civil engineer, and the manufacturer, all receive appropriate instruction and special training, suited to their respective wants. And so should the farmer, the progress of whose pursuits, as has been already shewn, depends in a high degree on extensive information, as well as practical skill. The thing is certain, that however behind and imperfect may be the present state of scientific agriculture, nothing happens within its wide range by chance; success or failure, a crop or a blight, is the result of law. The object of science is to ascertain the facts of nature, and wisely to apply them. He therefore who understands the most of nature's secrets, which science alone reveals, will make, other circumstances being equal, the best and most successful farmer. Why, he would ask, should not an agricultural college be established in Kent? This county, which occupies so large and eminent a place in the annals of our history, ought to be behind other counties in institutions like these. We had not as yet, he believed, a single agricultural college, either in England or Scotland, while such institutions are frequent on the continent of Europe, and America. Ireland has one or two humble pretensions, which have produced much benefit to the farmers of that country. Gloucestershire, he was happy to say, was about setting the example to Britain. A collegiate institution in connection with a large farm, was about being opened under the patronage and support of a large number of noblemen, landholders, and farmers. The great advantage of such institutions was that agricultural education could be more thoroughly given, and at a cheaper rate, than could possibly be done by a single farmer, whatever his acquisitions may be.

It is objected to these institutions that they will give the young men high notions, and an aristocratic bearing; in other words, make the mechanical trades and works of a farm distasteful. There is an important sense in which it is most desirable that young farmers should have high notions, they cannot think too highly of the importance and scientific interest of the art they practice. That art they should regard both as a business and a profession, the advancement of which let every young farmer nobly aspire. It must be well known that our agricultural youth, if not disposed to exercise their talents in the pursuit of useful knowledge, will almost be sure to fall into low habits. Only come to one, who sees no rational interests in his pursuits, who is destined to live and die without making any advancement, with a youth who has received a suitable education in a public institution, and in whose mind has been awakened up an unconquer-

able desire for improvement. He enters on his farm, looks upon every thing in a scientific light and cherishes it with a fond and rational interest. To him duty becomes a pleasure, and in the fair temple of Nature, amidst the beauties and magnificence of creation, he is left to trace and adorn the power, wisdom, and goodness of the Creator. He (the lecturer) could in some degree understand the objections so frequently urged by practical men, against such institutions, and what is commonly designated book farming. After all, the number of this class of objectors is fast diminishing, and the farmers, as a body, are by no means so opposed to the acquirement and diffusion of knowledge, as their opponents are in the habit of representing. The fact is, theoretical and scientific writers have frequently made such egregious mistakes on agricultural subjects, that farmers have very naturally formed the habit of looking, at first, on any extraordinary statement or professed discovery with suspicion. The same observation applies to the class of new manures, each one of which is to do wonders, to render England, perhaps, an exporting country; but how many of these manures will not stand the test of experience, and in a few years are destined to general neglect. It must likewise be acknowledged, by those capable of forming a correct judgment on the subject, that there is a tendency in many of the sciences to hasty generalization as relating to agriculture. It ought to be remembered that almost all the great improvements in farming, such as better methods of cropping and manuring, the cultivation of turnips for folding, and green and root crops for stall feeding, draining, and subsoil ploughing, are results at which practical farmers arrived, in a great measure unaided by the teachings of modern science. This observation was made with the desire not to under-rate the value of science, but to place both science and practice on their proper footing, and in their true relations. They do not mutually assist each other. Practice, however, could do much better without science than science could without practice. Hence the desirableness of uniting them together as far as possible. In recommending a systematic course of education for the sons of farmers he wished it to be distinctly understood that he had no Utopian notion of making farmers generally accurate chemists, or profound geologists. Such is the present rapidly advancing state of many of the experimental sciences that a man could find time to think of nothing else in order to keep pace with them; and this presupposes that he first possess a general knowledge of their principles and applications. What seems to be especially wanting, is such an education for farmers as will give them a general knowledge of the sciences bearing on agriculture; a knowledge, correct of course, as far as it went, and thus enable him to co-operate advantageously with the professionally scientific man, and to have a clear understanding of the results of his labours. With such an union, agriculture must progress in indefinite improvement.

The advancement of agriculture, both as a science and an art, essentially requires on the part of those who pursue it, a suitable education and a

higher knowledge than is generally possessed. Much has already been accomplished in the improvement of British agriculture, particularly on the lighter soils. Look only to Norfolk, where a superior husbandry has, within the present century, converted thousands of acres of what were sterile moving sands, into the most productive soil for the growth of turnips and corn, in the kingdom. Yet even higher triumphs, he thought, awaited the onward progress of a scientific agriculture upon the wet, cold, and tenacious clay lands, which occupy no inconsiderable portion of this county. He would, in connexion with this part of the subject, introduce to their notice one single process, upon the proper performance of which so much depends. He referred to draining. Happily upon this topic, theory and practice were found to coincide. It was well known that water played an important part in the economy of nature, and was an essential means or condition of vegetable growth. Without it no solid manures could be converted into food for plants. But it was found by observation that land resting on a tenacious subsoil, and where the nature of the surface mould depended in a large degree on the character of the subjacent rock was more or less injured in its productive powers, as well as in its mechanical texture, by holding water in excess; or, in other words, not allowing it with sufficient rapidity to percolate away. Such soils were called by practical men late and cold; qualities which were owing to the nature of their particles, which being so adhesive, were brought into such close contact as to become impervious both to water and the air. Under such conditions vegetation could not flourish. What was the remedy, he might say with the strictest truth *the only remedy?* Under *draining*. This is essentially the first step, the only sure foundation of permanent improvement. The advantages of this process are of a twofold character—mechanical and chemical. It may fairly be questioned whether any mechanical alteration can be effected in the soil without inducing some chemical change likewise. Draining allows all superfluous water speedily to be absorbed and conveyed away, with which many salts injurious to the growth of plants are in a dissolved state, associated and carried off. Surface evaporation, that great source of cold and injury to vegetation, is greatly diminished, and of course the average temperature of the soil permanently raised. Dr. Madden, of Scotland, had proved this by a very careful series of experiments. The ground thus rid of an excess of stagnant water, becomes both drier and warmer; more easily cultivated, requiring therefore less power or expense, affording an earlier and better seed bed, and consequently earlier and more certain and productive harvests. Strictly speaking, thoroughly drained land will not only grow better, but within certain limits, different and superior crops, to what it could have produced before. It may almost be said to have a lower latitude, it absorbs more rapidly air and solar heat, and in many ways is more favourable not only to a superior growth of plants, but also conduces to a more equable and salubrious climate. It will appear evident on the least reflection that

to drain wet land, efficiently, and economically requires both knowledge and experience. A good drainer must be to some extent a practical geologist, whether he knows it or not. His plan must be modified to meet the varying dip and nature of the stratification. Without such knowledge he has no principals to guide him, and his practice must consequently, be hap-hazard, and frequently end more or less in failure. Thousands of pounds have been wasted in attempts at draining, merely from a want of the knowledge of the first principles. Whether to place drains in the direction of the inclination of the ground, or more or less at an angle with it, must be determined by a practical examination of the nature of the soil, the causes and witness and the inclination of the underlying strata. In the art of draining, as in all other arts, there are great first principles which may now be said to be, to some extent at least, established. But these principles are found to require in practice endless modifications to meet the peculiar circumstances of each particular case. He regarded, therefore, geology, or the sciences which explain the stratification of the crust of the earth, as intimately connected with draining and farming land as it was now felt to be with civil engineering. But there was another view of this great question on which he desired to say a few words.

In the calculations of the practical farmer or primary element was the *cost* of an operation. Hitherto this question of expense has operated very materially against thorough draining our second and third rate qualities of land, especially those of a uniform tenacious clay, which require the drains to be nearer together. Such land especially affords no stone with which the drains can be made, and wood is known to be a very perishable material. On a stiff, uniform clay free from gravel or stones, mole draining is a cheap method, but it is only temporary at best and never sufficiently deep. The grand desideratum, then, on clay soils, is a *cheap and permanent material*. Mechanical ingenuity has done considerable within these few years towards this object, by means of machinery. He should be guilty of unpardonable neglect, if not of injustice, if while upon this subject, before so large and respectable a meeting, he did not distinctly mention what had very recently been done in his own parish. By improvements on existing machinery, and some economical and simple arrangements of a tiler, the cost of producing a good permanent tile drain was most astonishingly reduced. And this has been done by a gentleman who has spent a long and useful life in advancing the interests of agriculture. He referred, as most of them well know, to Mr. Hedges, of Hemsted. That gentleman, in conjunction with a practical potter, a man possessing considerable knowledge of mechanical sciences, and a strong aptitude for manipulation had perfectly succeeded in showing how draining pipes may be made upon any clay farm at a very cheap rate. A machine capable of working with two men and two boys from four to six thousand a

of the largest sorts, together with a kiln capable of burning twenty or thirty thousand pipes at one time, with the necessary sheds answering a temporary purpose, might be erected for a sum not exceeding fifty pounds! What he stated was not a mere or private opinion, but a tangible fact, which Mr. Hodges had reduced to practice, as one might see. He knew of no discovery of late years that promised to confer so great a benefit on the wet, heavy lands of England as this, which he believed it would bring within the reach of all the means of thoroughly draining their land; an object in whatever light viewed, of supreme importance.

It is absurd to suppose that this country has arrived at the *ne plus ultra* of farming. No considerable district can be pointed out but what admits of very extensive improvements. Take, for example, the Weald of this county, what an ample field is there presented for the application of capital, skill, and enterprise. He knew of no portion of England that admitted of greater improvement than the Weald of Kent. Much had already been effected or was in operation, still a large amount remained to be done. He would willingly submit the following as the chief means of permanently improving that district, and these would apply more or less to a very large portion of the surface of the country. The first step was to make larger fields. Arable husbandry, especially in the present age of cheap provisions, cannot be carried on without serious loss, in all enclosures. Look only at the mechanical advantage of cultivating a two or three acre field, especially on a soil where a large amount of animal power is necessarily required. A sixth or seventh of a field consists of headlands, and as much time is wasted in turning the horses in every process of tillage. Then again there were high hedges, often of enormous width, and frequently filled with timber trees. It is a question which has strong claims on the attention of landowners, whether their estates might not be made more productive to themselves, their tenants, and the country by a general removal of hedge-row timber, the great bane of cultivation; especially as there appears no prospect of such a quantity of timber ever being of much value in this country. He believed the landowners of England, as a body, were the direct opposite of what their enemies were in the habit of representing them; and that they only needed to be convinced of the desirableness and practicability of new plans and projected improvements, at once to adopt them. Throughout what geologists term the Wealden, a large district included within the chalk range, a sort of semi-circle, from Folkestone on the north to Beachy Head at the south, the majority of parishes have probably from an eighth to a twelfth of their whole area consisting of hedge-rows alone. The mechanical disadvantages of cultivating small fields are not the only drawbacks. The shade occasioned by high hedges and trees will necessarily prevent vegetation, to which the sun's light and heat, and a free

circulation of air, are requisite; while their roots, often extending many yards into the field in search of food, rob the cultivated crops of the proper support. Besides, an enclosed country is always late as respects the agricultural season. Evaporation in the spring is retarded, and the crops are later in arriving at maturity. In a showery harvest, like the last, the corn most sprouted will be sure to be found near the hedges, which are also the nursery and hiding places of weeds, birds, &c. The first thing, then, is to open the country wherever it is needed. Then follows thorough-draining, deep ploughing, clean cultivation, judicious manuring, and such a rotation as is least exhausting. These were means of improvement he believed no practical man would dispute; and he was happy to say that the progress of science was such as not only to confirm the efficiency of these means, but also to explain the *rationale* of their operation and results.

In connexion with agricultural improvement he would introduce to their notice some sentiments in the celebrated speech of Sir Robert Peel to the Tanworth Farmers' Club some twelve months since; sentiments which he considered alike honorable to the head and heart of the first responsible adviser of the Sovereign of a great country. Sir Robert, before a large number of his own tenantry, said, that he was prepared to defray all expenses connected with a series of experiments on farming produce, manures, &c. if a number of competent practical men would take the trouble to perform them, and accurately publish the results. He would next introduce into the district at his own cost the best breeds of animals that could be obtained, if competent men would undertake to select them. He would grant leases to all tenants that desired them. And further he would cause all rabbits on the whole of his estates to be destroyed, and generally keep down the game so as not to injure the farmers. It cannot be doubted the Premier of England has clearly pointed out the principal means, the sure and certain way of developing the agricultural resources of our father land. Mr. Buckland concluded his lecture with a brief recapitulation, after which an unanimous vote of thanks for his lecture was passed by the club.

“Beware of thinking all your own that you possess, and of living accordingly.—This is a mistake that many people who have credit fall into. To prevent this, keep an exact account for some time, both of your expenses and your income. If you take the pains at first to enumerate particulars, it will have this good effect. you discover how wonderfully, small, trifling expenses amount up to large sums; and will discern what might have been, and may be for the future saved, without occasioning any great inconvenience”—*Franklin*.

## Agriculture, a Chemical Manufacture.

Will you oblige a constant reader by admitting to a place in your Paper the following reflections, which have been occasioned by pursuing your leading article of the 17th inst. You there compare the labours of the farmer to the labours of the chemist, and you ascribe want of success on the part of the farmer to his want of knowledge and skill.

When the Romans commenced any undertaking of moment, they began by sacrificing to the gods. Their courage or caution was increased according to the favourable indications or otherwise which their victims presented. The Romans were successful in most of their undertakings, and every wise man will ascribe a large portion of their success to their religious feeling. Cicero did so; for said he, addressing the Senate, "We may be what we like, Conscript Fathers, although we are inferior to the Gauls in strength, the Carthaginians in skill, the Spaniards in numbers, and the Greeks in arts; because we excel all nations in religious feeling, and in the knowledge of the truth that all things are subject to a providence, and governed by the will of the immortal gods."

Of every eminently successful farmer or stockmaster I have observed that he possessed a mind kindred in its nature to the Roman mind. He might be an immoral man or otherwise, but you recognized by his actions that his mind was ever ready to pay homage to the truth that all things are governed by any unseen agent. The character of his mind, indeed, is generally such that he would be accounted superstitious by the very intelligent writers whose ideas feed your columns. Yet, when we compare the results of such a man's life with the results produced by a Mechi, or some one of your other intelligent correspondents, who can deny that the superstition of the first is connected with far more valuable effects as to human happiness than the intelligence of the last.

These facts seem to indicate that an element is necessary to the success of the farmer's labours, of which no mention is made in your columns.

Again, there is an obvious relation between the moral condition of a man's mind (let its intelligence be what it may) and the fields which he cultivates. Of this fact any one may be convinced by considering the characters of a few of the farmers of a district. But if it is not sufficiently apparent in individual cases, let us

take the case of a nation. Let us compare gland with Ireland—ancient Judæa with modern Palestine—Europe reformed with Europe unformed, and we cannot doubt the fact that, together independent of skill and intelligence, the soil of every country under the sun, and everything that grows upon it, have a close and intimate relation to the moral condition of the human mind there. Elevate the human mind in any country, and you elevate everything else; let "light of life" be there, and the humblest labour of the farmer feels its influence, whether he understands chemistry or not. Let its lands be elevated in the same manner as the Romans gave their victories, that is "by faith," and you have the truth stating the cause of its agriculture more powerful than any which the sciences of chemistry can reveal.

Is this, sir, a time to compare the labours of the farmer with the labours of the chemist, when God of Nature, robbed of his honour, lets the utterings of his wrath be heard, and blasts the fruit of our labours by diseases which modern intelligence can neither account for nor remove?—*Russell, East Lothian.*

[Many thanks for your letter: there is truth that is true in it; and at the same time, in my opinion, some error also.

The general idea which it is calculated to excite in your opinion that agriculture is something more than a chemical manufacture—something more than anything merely physical—something more than a series of processes whose results are the consequence of mere matter acting atom upon atom in virtue of the various affinities with which each is endowed. In this we differ from you. There is no doubt, much that is mysterious in every branch of human knowledge (and there is no advantage in creating more, or imagining more unnecessarily,) and the practice of farming is exempt from the general truth; but mysterious wherever it has been examined and removed, hitherto proved nothing more than the offspring of ignorance; and this fairly suggests (and does it not justify?) the opinion that all mysterious reference to material truth is the consequence of limited knowledge, not of any mental incapacity to understand. Is there anything wrong in endeavouring to lessen the amount of existing mystery? We cannot think that you believe so.

The potato disease, so mysterious at present, will one day, no doubt, be clearly understood as the consequence of laws which have existed since

ation, and of circumstances (doubtless peculiar to the time,) some of which it may be within human power to meet or modify, and some of which, on the other hand, may, perhaps, be uncontrollable. Do you believe it irreverent to examine and investigate these subjects? On the contrary, do you not think that all natural subjects presented to us, as fields for the exercise of mental powers with which we are endowed? And now, as regards the influence of mental cultivation on the practice of agriculture. So far from it being a point hitherto untouched upon our columns, it is one which has been insisted upon. Our able colleague "C. W. H." has recently urged that land should be cultivated by mind, not by mere implements of husbandry; his meaning is precisely yours, that in all practice much depends not only upon intelligence and skill, but upon the energy and firmness of those powers which are the attributes of a well constituted mind.

And we include in our understanding of education not merely the means of storing the mind with facts—conferring upon it intelligence, but also of inuring and accustoming it to good habits and conferring upon it *quality*, so to speak. Education is doubtless moral as well as intellectual, and no one will question the superiority of religious lives over all others in the former, its more important branch: but why place moral excellence in *opposition* to intelligence. They are united but happily not opposed. Each has tended to the superiority of present over past time. Moral superiority could not have produced all this effect unaided by greater intelligence, any more than a better workman could exhibit all his superiority unaided by good tools.

And to add one more word, we cannot help thinking that you are not happy in your selection of cases to illustrate the superiority, which you insist upon, of moral character over mere intelligence as an element of agricultural success. It is unnecessary for your purpose to use Mr. Schi's name in so uncomplimentary a manner; and as it is, he by no means answers the end you aimed at, for he, if any, may be selected as the best among many, distinguished for his agricultural victory over untoward circumstances and inevitable materials.

The superiority which in many districts of Scotland prevail over others in England as regards cultivation, is, in our opinion, originally attri-

butable to the national characters, arising doubtless in part out of the strict moral and religious education there prevalent; but also, and in great measure, from the intellectual education by which such intelligence and ability are conferred on so large a proportion of their inhabitants. We end as we began, by contending that the full theory of agriculture as of all other *material* arts, is to be found in the laws of *matter* as they are expounded in chemistry and natural philosophy.—Ed. *Ag. Gaz.*]

The following is another letter on this subject, received during the past week:—

I have read your Leading Article of the 17th inst. with interest and pleasure; the more so, as I conceive it to be of the greatest importance, not only to individuals, but to the nation, that the farmer should be aided in his practice by science. It has been aptly remarked that "practice without knowledge is blind." This is especially true as regards agriculture, every operation in which, to be successful, requires to be conducted on scientific principles, as will be obvious to every one who reflects upon the nature of these operations.

It is worthy, then, of inquiry, whether that knowledge is possessed by the agricultural body; and if it be not, what means are to be used to afford it? That is not possessed is unhappily but too certain. What, then, is to be done? Are we to acknowledge the deficiency without endeavouring to remedy it? Are the higher and the lower classes exclusively to be regarded as meriting the attention in this respect of the Government and the country? No—surely! The prosperity and happiness of the nation depends upon the welfare of every class being duly promoted. Let then the education of the farmer be looked to as a national object, and let every one who depends upon or takes an interest in agriculture, lend a helping hand in establishing schools for the rising generation of farmers, upon a footing which shall make them available to the needy as well as the wealthy amongst us.—B. S.

—  
*Beeswax.*—The neatest way to separate beeswax from the comb, is to tie it in a piece of linen or woollen cloth or bag, with a pebble or two to keep it from floating; place it in a kettle of cold water, which is hung over the fire; as the water heats, the wax melts and rises to the surface, while all the impurities remained in the bag.—*Selected.*

## Coal Ashes—a Remedy for the Potato Rot.

The following interesting letter was recently read before the Brooklyn Natural History Society, on the subject of the potato disease, as it is the result of *experiment* we would suggest to our agricultural readers a particular attention to the subject. If *coal ashes* should prove a successful remedy for the potato rot, a market will be opened for a vast quantity of what is now, in our towns and cities, entirely useless.

HARTFORD, November 2, 1846.

To the Society of Nat. History, Brooklyn, N. Y.

GENTLEMEN,—The last time that I had the honor of attending your meeting, I promised to give you the result of my experiments in the cultivation of the potato. I have finished my crop, and will now give you the result.

About the first of April last I prepared two acres of ground for an early crop. A part of the field was a strong sandy loam; the other part, a strong clay soil. About one half I manured in the hill with good, rich, barn yard manure. The potatoes grew finely.

I commenced digging them about the first of July; and finer potatoes I never saw. In the course of ten or fifteen days I found them very badly affected with the rot;—so much so, that I gave up digging them, thinking it better to let them rot in the ground than to dig them and lose all my labor; for the disease was so prevalent here that potatoes would not sell at any price. I let them remain till last month, and on digging them, I found at least three quarters of the entire crop were completely decayed.

Half of the other part of the field I manured in the hill with coal ashes, putting about half a shovelfull to the hill.

I found on digging at different times through the summer, that there was no rotten potatoes to be found where the coal ashes were.

To see how it would work, I let them remain till after I had gathered the other part of the field; and to my great astonishment, on digging them, I must say that I never saw finer potatoes than these were: there were no rotten ones among them: they were all sound and very large, yielding at the rate of two hundred bushels to the acre; the rest of the field not yielding more than forty.

The next rows on each side of the coal ashes were badly rotted, while those planted with coal ashes were of the very best.

I prepared another field of about two acres for

a late crop. The soil was a black strong loam with here and there a patch of gravel. I plan a part of the field the last of May, but did not finish planting till the first week in June, owing to a long rain. Not having manure convenient and having dry wood ashes enough for about half of the field, I put a handfull of the ashes to each hill until all the ashes were used up. On the other part of the field I used plaster,—about half a handfull to the hill.

The result was, that where I used ashes, more than three-fourths of the entire crop were rotten, and where the plaster was, there were no rotten ones.

The potatoes were very small, owing to the extreme wet weather when planted. Some of those planted with plaster that were on higher ground—for instance, these on the ridge, where the furrows were turned together;—were very small and large.

Now, whether it is in the soil, the atmosphere, or manure, I am not chemist enough to determine, but this I do know; that where I used coal ashes I had potatoes of the first quality, and where I used manure, they were of the worst quality.

I have made diligent inquiry among my neighbors, and find that whenever the manure came in contact with the potatoes, they invariably rotted, but where they were planted, without manure, or where the manure was spread and ploughed in, they invariably had good crops.

I have, therefore, come to this conclusion; that strong manure, in contact with the potato, is a *poison*.

I believe that if the ground is well prepared and the manure well ploughed in, so that it does not come in contact with the potatoes, we should have far better crops.

If the above information will be of any benefit to the public, I shall be satisfied in contributing this small mite to their use.

I remain, gentlemen,

Your obedient servant,

W. BRADLOW.

—Far. & Mech.

To drive Rats from your premises.—Buy a pound of chloride of lime, and scatter it dry in every rat-hole and place that they visit, in the cellar and other parts of the house, in and under the cellar-wall, and they will soon leave you. Don't put it on very near any articles of iron provisions.

Peat or Swamp Muck is a good manure, if properly. If applied at once and alone, it sometimes produces little effect until well mixed in the soil, and then not very striking results; but it is a very lasting manure, and well worthy extensive use.

When taken from the swamp, wet, it is often only seven-eighths water—which may be ascertained by drying a pound of it on a dish in the sun, and then weighing it. Or in other words, it will absorb six or eight times its own weight of water. Hence the prodigious profit and advantage arising from using it, after being well dried, to litter barns and stables. It then sucks up the rich juice of the manure and the drainage of the stables, which, though the best part, are usually lost, at a tremendous rate, and makes in this way, by the union of the muck or peat with this rich stuff, a most powerful and abundant manure.

But most farmers who use it, and they are "few far between," put it on wet, while already saturated with its hogsheds of water; how can they then take up any more liquid? Hence why the success does not attend its use. Let it be drawn out the swamps to dry a year or two, under a coarse shed, and it may be drawn for a quarter of the labor as when heavy with water, and is ten times better for use.—*Cult. Almanac.*

**Improvement in Nail Making.**—We have recently examined the drawings of a machine for manufacturing horse shoe, and other nails, on a simple and ingenious plan, patented by Mr. Jediaiah Lumb, of Brandon, Rutland county, Vermont; we have also seen some specimens of nails manufactured by this method. They are made from mangled plates, with the grain of the iron lengthwise, and the nails and proportions appear as perfect as those made by the usual hand process. Mr. Holcomb's method a good mechanic can make 400 lbs of horse shoe nails per day. The machinery is simple in its construction, and promises to work an entire revolution in the nail manufacture. He has taken measures to secure patents in England and France for his invention. In addition to the above, which we copy from *Pureka*, we can speak in the most favourable manner of the invention, and from a personal interview with Mr. H., of the above machine, we are convinced that the utility of the invention is very great.

From data in our possession we estimate the quantity of horse shoe nails used annually in

the United States at 2000 tons, and if by this invention three cents per pound can be saved in their manufacture, the gain would be quite a desideratum for those interested.—*Far. & Mec.*

**Home.**—A man's house should be his earthly paradise. It should be, of all other spots, that which he leaves with most regret, and to which he returns with most delight. And in order that it may be so, it should be his daily task to provide everything convenient and comfortable, and even the tasteful and beautiful should not be neglected!

A few sunny pictures in simple frames shrouded,  
A few precious volumes, the wealth of the mind;  
And here and there treasured some rare gem of art,

To kindle the fancy or soften the heart;

Thus richly surrounded, why, why should I roam?

Oh! am I not happy—most happy at home?

**How to fatten Fowls.**—Confine your fowls in a large airy enclosure, and feed them on broken Indian corn, Indian meal, or mush, with raw potatoes cut into small pieces, not larger than a filbert, placing within their reach a quantity of charcoal broken into small pieces. Boiled rice is also good.

**Hints about Food.**—Roast meat contains nearly double the nourishment of boiled, but boiled meat is better adapted to weak digestion. Frying is one of the very worst methods of dressing food, as broiling is one of the best. Baked meat has a strong flavor, is deprived of some of its nutritious qualities, and is difficult of digestion. Spices, sauces, and melted butter, should never be used by an invalid.

When a crack is discovered in a stove, through which the fire and smoke penetrate, the aperture may be readily closed in a moment, with a composition consisting of wood ashes and common salt, made into a paste with a little water, plastered over the crack. The effect is equally certain whether the stove be cold or hot.—*Maine Far.*

**To mend Iron Pots.**—To repair cracks, &c. in iron pots or pans, mix some finely-sifted lime with well-beaten whites of eggs, till reduced to a paste, then add some iron file dust, apply the composition to the injured part, and it will soon become hard and fit for use.

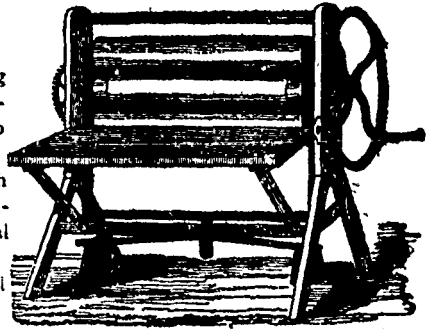


## MANGLE.

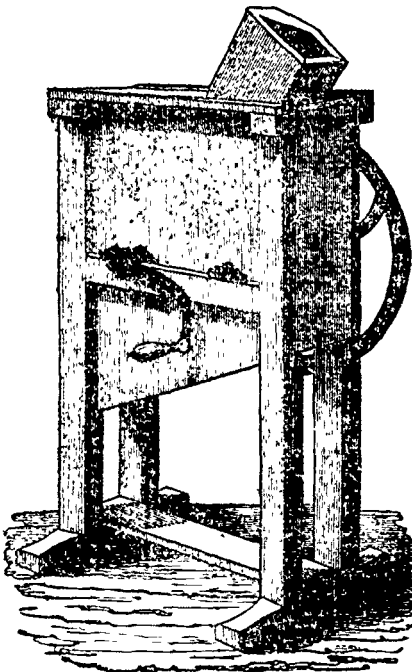
The accompanying plate is a correct drawing of a mangle, which was exhibited at the late Provincial Fair. It is considered, by good judges, to be a superior article.

This machine is perfectly portable,—as much so as a dining-room table; and when its efficiency is considered, it cannot but obtain general favor at the hands of those who have use for it.

These machines are for sale at the Provincial Agricultural Warehouse. Price, £4 10s.



## CORN SHELLER.

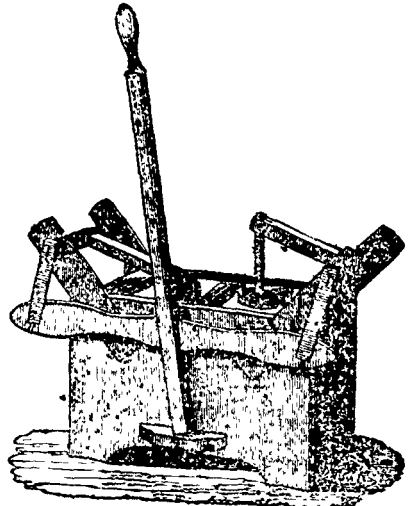


The above implement is highly esteemed in the Western and Northern States. It will shell or separate from the cob, sixty bushels of clean marketable corn in a day. One would almost be sufficient for an entire settlement. They are perfectly portable, and may be driven either by hand or horse-power.

A few on sale at the Provincial Agricultural Warehouse. Price £2 10s each.

**Bait for Rats.**—Mix a paste of corn meal with raw eggs, which is the best bait for a wire-trap; they will all get in, if there is room.

## PATENT CHURN.



The above is a correct representation of a Patent Churn, the pattern of which was lately imported from the United States. They are a most ingenious and efficient article. A general assortment kept constantly on hand at the Provincial Warehouse. Price, from £1 to £1 10s.

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